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THE SECOND KUOMINTANG-COMMUNIST PARTNERSHIP

IS CHINA THE UNDERDOG?

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The Second Kuomintang-Communist Partnership

The Present Status and Its Future

By K. S. INUI, LL.D.

I.—Introduction

The Kuomintang adherents, prior to the present incident, had kept the " progress " of political reconstruction in the forefront of China's publicity campaign. Approaching the question from that angle, it is not hard to discern that it was at least one of the ways and means of strengthening the Kuomintang, the sole political party centered around General Chiang Kai-shek. Such an objective becomes at once evident when we trace the intricate paths which the General has trod for the past ten or more years.

The renowned leader left no stone unturned in order to bring this about, resorting to questionable means of bribery, threat, persuasion and opportunism as well as all other time-honoured mediæval methods, upon which foundation he has built up his present position. Through his well-planned manœuvring, he absorbed the combined influence of Yen Shih-shan and Feng Yu-hsiang, suppressed the Fukien independent government, and reduced the antagonistic and autonomous elements of the provinces. Thus he was able to produce a semblance of unity under Nanking's sway, but, alas! just to discover another and more menacing monster in the form of Communism, the China division of the Comintern.

It is a notorious fact that as soon as Chiang Kai-shek succeeded in his northern drive from Canton in 1927 he parted company with his Communistic partisans who were his comrades in arms in their arduous march to Hankow. From that time on to the Sian incident, in order to bring about one-party control under the Kuomintang, he sacrificed much of the nation's time, blood and treasure, politically and militarily. Ever since the mysterious Sian incident the Kuomintang not only ceased its armed contest with the Red cohort, but it developed a co-ordination of the two parties by means of an anti-Japanese front populaire, giving Communism the much-sought-for impetus. The area once under the control of the Kuomintang is speedily giving way to Red penetration.

Since the removal of the national government to Chungking and its administrative organs to Hankow everything points nationally and internationally toward an easy passage for the Communist party overshadowing the influence of Chiang Kai-shek, who was ostensibly, at least, the moving spirit of China's front populaire. It is no exaggeration to say that the Communist now firmly grips hegemony internally, driving a wedge between the conservative and moderate elements as against the leftists within the Kuomintang party. Nothing but a painful operation will now relieve China of the chronic ailment and the Far East of the sad destruction of Oriental culture.

II.—A Sketch of the Two-Party Partnership

The incessant military contests that took place between China's two major parties since 1927 came to a sudden stop, the Sian incident at the end of 1936 as an epoc. It can be said that there has been neither a political nor a military struggle between the clique that surrounds Chiang Kai-shek, for ostensibly, at least, he was enabled to return from Sian by the good offices of the representatives of the Communist party and leftists among the Nationalists. Although Chiang Kai-shek is an overwhelming power within the Kuomintang régime, he was by no means its all. There were anti-Communist elements among them who could not tolerate Chiang Kai-shek's conciliatory policies toward Sovietism.

Conspicuous among these elements were the C. C. Band, the Blue Shirts, who acted as vanguards against Communistic activities up to the time of the Sian incident, and the moderates among the Nationalists. If there was any anti-Communistic political movement since the Sian days to the beginning of the present hostilities it was not due to any action on the part of Chiang Kai-shek, but rather due to these anti-Communistic factions. Although Chiang Kai-shek gave up his Communist suppression activities, dating back to 1937, as a result of his negotiation with the representatives of Communists, Chang Hsueh-liang and Yang Hu-cheng, it was impossible for him to so easily whip anti-Communist elements within the Nationalist party into his way of thinking.

Although " the resolution to exterminate the Red menace " of the second plenary session of the Central Executive Committee of the Kuomintang gave the impression of a determined front, it hinted at conciliation and a departure from the Communist suppression policy of the Nationalist party. Moreover, it did not express any positive co-operation with the Communist party. Together they indicate the inside workings and just how the wind was blowing. Such an undercurrent was openly brought to a head when the manifesto of the China Communist party was issued on September 22, 1937. It was prefaced by the necessity of a change of their attitude in order to strengthen national unity. Such was to be brought about by making anti-Japanese warfare as a means. To that end, the session

(1) Recognized the necessity of the San Ming Chui for the reconstruction of China and pledged to evoke the long-neglected document into action ;
(2) Renounced the policy of desisting the Kuomintang régime, as well as the Sovietization movement and the policy of forceful confiscation of land and property ;
(3) Dissolved the Soviet Government, supporting the democratic régime ;
(4) Disbanded the Red armies, creating the people's revolutionary army by placing it under the direct command of the National Military Affairs Committee.

In addition, the declaration went on to say that the Eighth Route Army was already in action in the Shansi front under the command of the committee above mentioned.

The declaration was at once put into practice. It was repeated in the manifesto of February 20 expressing unreserved co-operation with the Kuomintang. This declaration provoked a timely welcome in the form of a statement from Chiang Kai-shek in his capacity as Chairman of the Executive Yuan and of the Military Affairs Committee. He held out, among others, for the abandonment of the Sovietization movement by the Communist party and the dissolution of the Soviet government as well as its Red Army as basic requirements for the national mobilization and defense against external foes. He insisted also that the government be willing to co-operate with any party whatsoever that was willing to resist foreign aggression and that would work within the ægis of the Kuomintang toward national revolution.

These two documents were heralded in the Chinese press through the Central News Agency. This action was followed by the incorporation of the Communist Army forces as a unit in the National Army under the caption of the Eighth Route Army, with the appointment of Chu Teh as its commander and Peng Teh-huai lieutenant-commander. This, indeed, is the first open declaration for a Kuomintang and Communist united front establishing the legitimacy of its activities. Thus the Sian incident was the turning-point for the Kuomintang and Communist *rapprochement*; and after hazardous experiences of nine months, China's Communism openly occupied a place on its political stage. This was highly praised by the *"Imprecor,"* an organ of the Comintern, under the date of December 15, 1937.

It may now be of interest to inquire as to what political background was responsible for the Sian incident which brought about such an important Nationalist-Communist *rapprochement*. Just about that time Chiang Kai-shek, having succeeded in the suppression of the Communistic bandits in Suiyuan, commenced vigorous political action in order to reduce to naught the Communistic stronghold of northern Shensi. At the same time he proposed to transfer Chang Hsueh-liang and Yang Hu-cheng, who showed a conciliatory sign toward the Communistic army, to other posts. Contrary to the cherished expectation of Chiang Kai-shek that he was nearing the last leg of his Communist suppression campaign, the then political atmosphere was but fanned to a fever heat in what was known elsewhere as front populaire.

Anti-Japanese Movement Begins

Not only was the Communistic influence spreading widely among the Chang and Yen cohorts and the northern Shensi population, but the Anti-Japanese National Salvation Movement also began to show its ugly head throughout the length and breadth of the country. Since the Anti-Japanese National Salvation declaration of the Communist party of August 1, 1935, the anti-Japanese movement that was spread throughout the country resulted in an organization known as the National Federation of National Salvation Associations. Thus at the height of the contest a definite non-political influence tolerating Communism and resisting Japan was brought into being by both Chiang Kai-shek and the Nationalist party upon the two strong contenders of those who stood for suppression of and conciliation with the Communists.

The Sian incident, therefore, can hardly be dismissed as an aimless act of Chang Hsueh-liang and Yang Hu-cheng, but rather was it most intricate and full of political significance. The incident, therefore, must be viewed as a most acute friction between the Kuomintang régime and the newly-developed Communistic influence in the form of a front populaire and an anti-Japanese movement. What results this has brought about is an absorbing question.

Chiang Kai-shek shifted from Communist suppression to Communist moderation, and the Kuomintang policies took the first bold step toward the Anti-Japanese People's Federation. The fact that the representative Communist elements and anti-Japanese faction within the Nationalist party were extremely active simultaneously with the Sian incident influenced Chiang Kai-shek to change his policy. It was decided in the third plenary session of the Central Executive Committee held in February, 1937, to abandon formally the Communist suppression policy, and resolved to demand of the Communist party the following:

(1) The obliteration of the so-called Communist party, the Red army and Soviet areas;

(2) Estoppage of the Red propaganda and the acceptance of the San Ming Chui;

(3) Estoppage of class struggles.

As soon as the session came to an end on February 22 General Chiang, in his personal capacity and in the form of an interview, made the following declaration through the Central Press Agency that he would, as occasion required, undertake to give effect to

(1) Freedom of speech;

(2) Mobilization of capable *personnel*;

(3) Amnesty to political offenders.

This interview is no other than an expression of his decision to put into gradual effect the demands of the Communist party and front populaire to which he acceded in Sian. The wording of the resolution of the third plenary session of the Central Executive Committee, as well as his own interview, was rich in contents, but extremely moderate. This was due partly to the fact that it was difficult to shift the gear from the Communist suppression policy to Communist toleration—in fact, the Communist co-operation policy with the Kuomintang party. He undoubtedly was also apprehensive that such a right-about change of policy, if vigoroulsy pursued, would provoke an internal explosion. Neither was it difficult to discern that he was guided by external consideration, particularly that with Japan. That the resolutions of the third plenary session of the Central Executive Committee were a stereotyped document is more than apparent in view of the fact that the China Communist party, immediately prior to the opening of the session, already on February 10 had heralded throughout the country the putting into practice of the principles embodied therein.

The Sian incident marked the change, so far as China was concerned, from her policy of conciliation toward Japan to resolute resistance from Chiang Kai-shek's dictatorship to an anti-Japanese front populaire and from national existence into national suicide. Strange though it may seem, making the Sian incident as a turning-point Chiang Kai-shek pursued consistently the policy of tolerating Communism, openly or secretly, which at last was the leading cause of bringing about the present catastrophe.

III.—Anti-Japanese Co-operation between the Kuomintang and Communists

It goes without saying that the Lukoujao incident of July last year, which was aggravated into a titanic struggle between China and Japan in the North, and the spread of the disaster to the Shanghai sector in August, has proven to be a decided impetus to the unification program of Chiang Kai-shek. The Chiang régime was greatly strengthened by the China incident and was placed in an advantageous position, as is always the case when a divided country is confronted with external pressure, which provokes the operation of oppression nationalism. In the early stage of the present struggle, likewise, due to over-confidence and to an exaggerated idea of the capacity of their own strength, temporarily at any rate, internal contradictions and frictions were minimized within the nation. So long as Chiang Kai-shek was able to keep up the pretence of successfully waging a war of resistance it was possible for him to maintain the general mobilization and the general national federation of a front populaire against Japan. Not to be outshone by Chiang, the Communist party came out openly in its activities under the jingoistic slogan of "the mobilization of the masses in the anti-Japanese struggle for national liberation." The authorship of the same is no other than Comintern. To this, Chiang Kai-shek and his party responded with "resolute resistance against Japan."

In Hankow to-day a decidedly more leftist administration, embodying a deeper red complexion as compared with the first Kuomintang and Communist co-operative régime of about 10 years ago, is in existence. To say that the city is the Communist stronghold in the Sovietization of the country is no exaggeration. The representatives of the Communist party and its affiliated organizations are now participating in the important meetings of the Kuomintang régime. Last January in Hankow the "Hsin Hwa Jih Pao," a new organ of the Communist party, was inaugurated, and it is exercising a strong anti-Japanese influence among the masses, according to a Reuter's dispatch of Hankow of February 12. Its circulation, we are informed, has gone beyond 50,000. Shen Chun-yu, Sha Chien-li, Li Kung-ho and other well-known leftist writers are hard at work in Hankow. The erstwhile headquarters of the Nationalist culture is now under the complete control of the front populaire.

Such is evident in schools, in barracks, in factories and every nook and corner of government offices. The star actor of the National Salvation Association, in the person of Chang Nai-chi, was appointed chief of the Bureau of Finance of the government of Anhwei. Chiang Tsin-kuo, once ex-communicated son of Chiang Kai-shek for his Communistic turn of mind, was recalled from Moscow and given the important post of Deputy Chief of the Peace Preservation Corps of Kiangsi Province. Kuo Mei-ju, erstwhile Communist political refugee in Japan, was summoned to head a section of the Bureau of Propaganda, whose special function is to depict dark and false pictures of Japan and the Japanese. Chu Weng-lai, a leader of the Communist party, who has been extremely active for the Kuomintang-Communist *rapprochement* since the Sian incident, was seen, at the Red Army Memorial Day, which was held in the Russian Embassy in Hankow toward the end of February, rubbing shoulders with Feng Yu-hsiang, representing Chiang Kai-shek, Dr. H. H. Kung, president of the Executive Yuan, Ambassador Johnson, of U.S.A., and Ambassador Naggier, of France, and 600 other notables. Or again, such figures as Mou Tsu-tung and Chen Shao-yu are constant travellers by plane between Hankow and Sian.

Chiang has Praise for Communists

Furthermore, Chiang Kai-shek on February 14, on the occasion of the Central Weekly Memorial Day, praised the Communistic Eighth Route Army somewhat as follows:

"The leaders of the Eighth Route Army are rich in culture, capable of placing the nation at ease, strong with arms, capable of stabilizing the nation. Their clean, pure and indomitable will might be well adopted as a model by the nation. They are endowed with wisdom and experience and have been successful in their struggles in Shansi and Hopei. Should the Central Army follow the example of the Eighth Route Army it can greatly obviate its disciplinary difficulties. Much is expected of the Eighth Route Army in the future. The Central Army should reflect itself and should no more make light of the new comrades."

The very next day General Chiang Kai-shek officially decorated Chiu Teh and Mou Tsu-tung, Commander-in-Chief and Lieutenant-Commander-in-Chief respectively of the Eighth Route Army.

Chsu Weng-lai on his part is responsible for a statement before a group of foreign correspondents to the effect that they were studying the general principles of co-operation between the Kuomintang and Communist parties. General agreements have already been reached. However, in what form it will be announced has not yet been decided upon, as to whether they will form a joint platform or a companion platform of the two parties throughout the country. Still further, "The Chung Shan Weekly," the organ of the Central Executive Committee of the Kuomintang, according to a Reuter's dispatch from Hankow of March 7, opined that what is to be the future relationship between the Kuomintang and Communist parties is not our immediate question. Such a matter can well remain until the end of the present struggle. We need not trouble ourselves as to which shall rule the nation, the Kuomintang or Communist party. Our immediate question is to win the war.

Thus, the editorial goes on to say that the only way for defeated China to proceed is to maintain the partnership of the parties within and to strengthen the Sino-Russian co-operation without. As compared with the Kuomintang, which has received a terrihle blow as a result of the successive failures in battle, the Communist party has not only risen by leaps and bounds, by summoning under its sway anti-Japanese students, intelligentsia and rural and provincial young men, but also by allying themselves with the third party militarists and politicians of the districts and are seducing the Kuomintang's minor officials and petty soldiers of the Central Army.

IV.—Analysis of the Friction between the Two Parties

Although the two parties have gone a long way in their co-operative activities against Japan, latent friction between them at the same time is rapidly increasing and, on several occasions, has resulted in consequential explosions. Paradoxical though it may sound, the *rapprochement* between the two major parties is accompanied by two great currents of co-operation on the one side and of friction on the other. For the expressed ideals and the traditional policies of the two parties are fundamentally irreconcilable. The acceptance of the San Ming Chui by the Communist party is nothing but an empty paper declaration. For instance, curriculum of the schools under the Communist party in northern Shensi include Marxism and the history of Russian Communism. Successive pamphlets issued by the Communist party are, without exception, concerned with the propagation of Communism, but not a word, even for an introduction, of the San Ming Chui. Furthermore, the inherent animosity between the members of these parties due to the enormous sacrifices of the past ten years cannot be easily brushed aside. Both of the parties have from within contending factions. Such is especially true within the Kuomintang as ex-emplified by the C.C. Band and Blue Shirts, who are traditional antagonists of the Communist party. Even conservative or moderate elements within the Kuomintang look askance upon Communists. Indeed, Chiang Kai-shek, the idol of the Nationalist party, entertains fear of the increasing influence of the Communist party.

Toward the end of February last Professor Chen Kuo-hsin, who is well known for his liberal inclination, published an essay under the auspices of the Sian Young Students' Association, entitled "The Substance of the Chinese Communist Party as Seen in 'The Emancipation'" (the organ of the party). The pamphlet in question bases its thesis on the articles and expressions appearing in the above Communist publication. It points out innumerable cases where the Communist party disregarded its own declarations. It sadly confesses the boundless grief of the approaching fall of the Chinese nation, realizing the impossibility of their national unification in the war against Japan, coupled with the corresponding danger of increasing a cleavage between the two parties.

It appears that the same feeling is shared by an overwhelming majority of the Kuomintang, with the exception of the leftist element, who are traditionally inclined toward Sovietism. Although the Communist party has managed to camouflage all of its activities under the anti-Japanese slogan, it can hardly bring any thinking person to believing that its co-operation with the Kuomintang is its genuine intention. Rather is it to be viewed as a temporary strategy to reduce the Kuomintang régime. That the Communist party extended its helping hand of co-operation toward the Kuomintang is due to its realization of the failure of the latter to establish an all-China Soviet movement, the dwindling of its armies in contradistinction to an overwhelming increase of the Kuomintang influence and the taking advantage of the resolution regarding, above all, "the anti-imperialistic peoples' front in semi-colonial countries," adopted at the Seventh Comintern Congress.

Some Concrete Cases

Holding high the banner of the San Ming Chui, thereby skilfully averting any possible attack from the Kuomintang quarters, the Communist party penetrated into the very heart of the rival party, dissolving slowly the unity of the Central armies. It is more correct to say that the Kuomintang-Communist co-operation is another name for a communistic penetration in itself, and the attending friction between the two parties is nothing but a natural outcome. According to the Reuter's report of February 12 from Hankow, the miserably defeated China, though she presented at the outset a semblance of the national unification against Japan, has now reverted back to the pre-war status in its relationships between the central and provincial influences. The Kuomintang leaders are spending restless nights because of a grand scale propaganda program of the Communist party, and are greatly exercised over this unfaithful conduct on the part of the Communists. They have gone so far as to make a boastful threat, saying that if the Communist party does not follow the bidding of the Kuomintang Chiang Kai-shek will use his army of 500,000 to decide who is the master of its household. We might now enumerate a few concrete cases where these contesting parties have been at odds.

(1) The branch Kuomintang of Shensi Province proclaimed one-party dictatorship, insisting that the anti-Japanese unified front proposed by the Communist party is nothing but a political deception. It also prohibited the publication, arresting the editors of "The Emancipation," the organ of the Communist party, ordering finally the dissolution of the party itself. The Shensi provincial committee of the Communist party, on its part, retaliated to the above disposition by urging that the Kuomintang purposely misinterpreted the declaration of the Communist party of September 22 and coerced the minority under the splendid name of national unity. Thus, a keen struggle has been kept alive between the two parties.

(2) Soon after its inauguration in January last an assault on the "Hsin Hwa Jih Pao," the organ of the China Communist party, took place, resulting in the destruction of the editorial offices and printing shops.

(3) Soon after the above incident the "Wu Han Jih Pao," an organ of the Kuomintang, editorialized an article in the following vein. The Nazi authority was greatly strengthened as a result of the thorough renovation of the German army. We are inclined toward one party government for this country. China does well to copy Germany and concentrate its force of the Kuomintang

authority, as did Germany under the Nazist régime. We expect to put into actuality our motto: "There shall be no other party within or without the Kuomintang," thus advocating constantly one-party dictatorship. At the same time the "So Dong Pao," the organ of the Military Affairs Committee, severely criticized the fact that the Eighth Route Army still kept up its original organization, conducting a military school and publishing a newspaper.

(4) Mou Tsu-tung and Hsu Teh replied in the "Hsin Hwa Jih Pao" to the above frontal attack on the Kuomintang Press. They said that the one party dictatorship of the Kuomintang is to be differentiated from the proletarian dictatorship of the Soviet Federation, and that what the "Wu Han Jih Pao" and the "So Dong Pao" insist upon is in no way loyal to China.

(5) After a careful conference the C.C. Band and the Blue Shirts took the position that the rapid increase of the Communist forces and the growing influence of the Communist party upon the masses and the Soviet stronghold in the north western district would throw a most undesirable reflection upon the prestige of the Kuomintang. So they agreed to administer a blow to the legal existence and open activities of organized Communism. By sponsoring the San Ming Chui Young Men's Association and associates of the Kuomintang, co-operating even the Trotskyites, the C.C. Band and the Blue Shirts, the Kuomintang decided to co-operate in action against Communism.

(6) The "Kuomin Jih Pao," the organ of the Honan provincial branch of the Kuomintang party, beginning on February 21, for three consecutive days published an attack upon the unfaithful conduct of the Communist party. It stated that the victory by the Eighth Route Army is an outright exaggeration; that the Communist army at the time of reorganization had merely a force of 40,000; even if half of this number joined the Shansi battlefront, it only constitutes merely one-fiftieth of the Kuomintang expeditionary forces of one million. The editorial went on to say that the Communist party, instead of retaining majority forces in northern Shensi, is endeavoring to augment its forces. For the final objective of the Communist party is Marxism. The article even claimed that Chen Shao-yu, the former Chinese representative in Soviet Russia, should be court-martialled.

V.—As to the Future

Contrary to the cherished expectations at the outset of the present hostilities, the international relations of defeated China now presents exactly an opposite phenomena and has become extremely unfavorable to the prolongation of disastrous struggles. So long as China continues her anti-Japanese activities, externally, she is compelled to receive assistance from Russia. The Italian adhesion to the anti-Communistic front, the recognition of Manchoukuo by Germany, the resignation of Eden, the former British foreign secretary; the Austro-German Anschluss, and the French and British recognition thereof, the maintenance by America of strict neutrality, and all have administered disastrous blows to the Hankow régime that now tolerates Communism.

Even France recently has decided to prohibit transit trade through Annam of foreign-made arms and ammunition. She has been profiting while Chiang Kai-shek has had no time for any domestic care. Yunnan is grooming Lung Yun, who is no better than a bandit, into a greater Chinese military lord of the district. Thus, defeated China, even though it is clear by the report of Chan Yuen, former Chinese Ambassador to Soviet Russia, that U.S.S.R. is isolated internationally, greatly aggravated by internal strife, possessing no intention for any positive action against Japan, pitifully hitches her only hope to the star of the community of interest between China and Russia. So she receives empty promises and supplies in goods and money to resist Japan from those undependable quarters; and is compelled to give distasteful consideration to the Communist party question within the nation in order that she may strengthen her relations with Soviet Russia.

Chiang Kai-shek knows too well that the real motives of Soviet Russia lie not in her assistance to the Kuomintang, but rather in attaining the power to control China's Communist party or its front populaire. Therefore, even though he understands that there exists a growing anti-Communistic power within the Nationalist party, coupled with intensified friction between the two parties, he is unable to part company with the unwelcome partners. In reality, so long as he keeps up with the anti-Japanese warfare, he can never bring pressure to bear upon the Communist party. The only way that is left for Chiang Kai-shek to pursue, at present, is to strengthen his co-operation with the Communist party and drive away the anti-communistic, conservative elements within the Nationalist party, on the one hand, or to circumscribe the excessive activities of the Communist party on the other. The anti-Japanese front populaire, which is the controlling influence within the Kuomintang, will undoubtedly gain its power. Chiang Kai-shek, though he may ardently aspire to be its commanding authority, may yet be displaced by the Communist party and be reduced to an insignificant existence within the ægis of the vulgar anti-Japanese front populaire. In short, the moderation of Communism, Soviet Russia and anti-Japonism will be the coming targets of China's highway. In such a step the Nationalist-Communist friction will continue and the Communist party will prosper under the helping hands of the anti-Japanese front populaire.

Thus the Communist party is destined to expand its influence through the mass movement, while the Nationalist party is receiving death-blows because of Chiang's defeat in the field. In addition, there has always existed a factional struggle within, while its pressure upon the Communist party has been greatly minimized. Although the Communist party has in its background Soviet Russia and the world-wide Red influence, the external relations of the Kuomintang has become extremely isolated and precarious.

Whether it is the Kuomintang or Communist party is no longer the question of the day. In China to-day the anti-Japanese front populaire has registered a victory, while its driving influence is the Communist party. Chiang Kai-shek and the Nationalist government have already turned into merely an incident of the anti-Japanese front populaire. The Kuomintang régime is now going through a process of self-destruction. Be it co-operation or contest with the Communist party, the result is the same. The Nationalist régime is rapidly disintegrating. On February 11 Mou Tsu-tung replied to a United Press correspondent at Yen An, of Shensi, relative to the durability of the dual party co-operation. "The partnership," he said, "between the Nationalist and Communist parties came into existence upon an anti-Japanese foundation and joint post-war reconstruction of new China. If the Kuomintang is to be guided by these principles, it will undoubtedly continue for ever."

Showa Steel to Boost Output

Of the 11,000,000 metric tons of iron products to be produced in 1941 under the Japan-Manchoukuo iron and steel production plan which has been decided by the Planning Board of the Tokyo Government, Manchuria's share is 4,500,000 tons, 4,000,000 tons of which will be supplied by the Showa Steel Works and the remaining 500,000 tons by the Penhsihu Iron Works and Collieries. Advancing the date of completion of the fourth production plan, which is scheduled to be finished by the end of 1940, by one year, the Showa Steel Works is expected to complete the fourth plan for pig-iron in 1938 and that for steel and luppe in 1939. According to this plan, 1,700,000 tons of pig-iron, 1,000,000 tons of steel and 200,000 tons of luppe are to be produced. Under the fifth plan. it is planned to produce 3,000,000 tons of pig-iron, 2,000,000 tons of steel and 200,000 tons of luppe in 1941.

Material for the above output will be supplied by speeding up the exploitation of the Tungpientao district as well as by increasing the production of Tahushan, Kungchangling and Changlingtzu ores.

It is estimated that 200 million yen is required for carrying out the third and fourth plans, and 350 millions for the fifth plan making the total, 550 millions. Of this amount 100 millions will be met by the issuance of new debentures and out of the Showa Steel Works' reserve funds, 11 million yen by calling up unpaid shares on April 16, and by increasing the company's capital by one and a half times after the existing shares have been fully paid up. Upon the return from Germany of an engineer of the Showa Steel Works this summer, equipment for the production of luppe by the Lane method is expected to be installed. Starting operation from August, 1939, 200,000 tons will be produced as provided in the fourth plan.

Is China the Under-dog?

By HIROSI SAITO

[The following article, written by the Japanese Ambassador to the United States, appeared originally in the January issue of " The Connecticut Circle." It provoked widespread comment and keen interest in the Eastern States, and was widely reprinted in American newspapers, with the result that numerous meetings were arranged for audiences of Americans eager to hear more regarding Japan's side of the case.]

* * *

From the beginning of the present hostilities in the Far East American public opinion has been unfavorable to Japan. From the American point of view China was the under-dog. Japan had been advancing into Continental Asia in recent years, many critics argued, first establishing the " puppet " State of Manchoukuo and later imposing her will on parts of China. Now she was advancing into China proper with an army numerically much smaller than those of the Chinese, but much more effectively disciplined and equipped. Americans seemed to have hoped that China might win. They did not, however, desire or even intend to become involved in the conflict. But they wished, as the popular expression goes, to " put Japan on the spot." The movement for boycotting Japanese goods, the practicability of such a measure, and the danger of war ensuing from following such a step were therefore considerably discussed.

In the opinion of critics China was a Republic, even if only in name, while Japan, on the other hand, appeared to be a totalitarian nation under military dictatorship. What Japan did went against the grain, while what China did went with it. In such a frame of mind American public opinion was disinclined to study the very complicated situation in the Far East and even unwilling to listen to statements or arguments from the Japanese side. However, as the situation developed and the voices of men well versed in the Oriental situation and foreign affairs became audible, public opinion appears to have, let me say, begun to change.

The pendulum had gone too far to one side. Japan's stand in the present conflict is becoming better understood in the United States. Conspicuous among Americans who understood the situation were, naturally, the representatives of the American Government in the Far East. Their impartial attitude has been well appreciated in Japan.

I have said that the opposition toward Japan held by American public opinion is undergoing modification. I am confident that in the near future it will be found uncalled-for and misdirected. What I mean is that when peace comes between China and Japan—as all peace-loving persons must hope it will soon—there will be a clearer understanding. The terms of settlement Japan will present to China will be moderate and will demonstrate that Japan has had no aggressive designs. The terms, I think, will surprise Americans; and, being a people who do not harbor ill-feeling, your pendulum of opinion will, I believe, at least approach the fair and normal perpendicular.

Our Prime Minister and Foreign Minister declared at the time Japan was forced to decide upon the dispatch of troops to the continent that Japan had no territorial designs. On September 5 last Prince Konoye, our Prime Minister, addressed the opening session of the Diet in the following terms:

" The fundamental policy of the Japanese Government toward China is simply and only to seek a reconsideration on the part of the Chinese Government and the abandonment of its erroneous anti-Japanese policies, with a view to making a basic readjustment of the relations between the two countries. . . . The Chinese people themselves by no means form the objective of our actions, which are directed rather against the Chinese Government and its army, who are together carrying out such erroneous anti-foreign policies. If, therefore, the Chinese Government truly and fully re-examines its attitude, and in real earnest makes an effort for the establishment of peace and for the development of culture in the Orient in collaboration with our country, our Empire intends to press no further."

The attitude of the Japanese Government in this respect has not changed with the progress of the situation. As the Nanking Government realizes that no further resistance will be of any avail, the terms of settlement we will negotiate with China will not go beyond what are outlined in the foregoing statement. For the sake of future security, and to make sure that there will be no recurrence of such troubles as the present, Japan will perhaps wish to have a demilitarized zone established around the City of Shanghai. A similar arrangement may be offered for North China.

These arrangements will not only benefit Japan; they will safeguard also the rights and interests of other foreign Powers. The promotion of such interests and rights will be made possible and easier. Especially in North China, when law and order is restored and established in that region, financial and technical co-operation of foreign Powers in the development and rehabilitation of the several provinces will be heartily welcomed by Japanese. It is our sincere hope that the welfare of the Far East will be advanced through the well-meaning co-operation of the Powers interested. For a long time there has been too much rivalry and competition among them.

As to the incidents that precipitated the present conflict—the now-famous Marco Polo Bridge incident near Peking, and the Shanghai incident, in which two Japanese sailors were murdered—Japan has concrete evidence that they were deliberate provocations by the Chinese military. But now that the situation has become so much aggravated, who started such incidents is immaterial. What is important is that these incidents were only natural outcomes of the intense anti-Japanese feeling that had been worked up in the Chinese armies. The tendency in recent years in China has been that the conciliatory attitude followed by Japan was taken as a sign of weakness. Especially, assassinations of important political figures in Japan were looked upon as an indication that the country was on the verge of internal revolution. The Chinese thought that it was an opportune moment to strike at Japan. Moreover, since the mysterious Sian incident of a year ago, when General Chiang Kai-shek was kidnapped by General Chang Hsueh-liang, an alliance has been formed between the Nationalist Government and the Communist elements in China. Their common slogan was an immediate declaration of war on Japan. Such is the background which did not allow the Marco Polo Bridge incident to be settled locally, as Japan desired. The commanding officer in Peking at that time agreed with the Japanese army that the incident should be immediately and locally settled. But the Nanking Government declared that no truce arranged in Peking would be recognized by the Central authorities, and ordered the Nationalist Army to proceed to the North.

The determination held by the Japanese Government not to have the incident aggrandized was thereby frustrated. How unprepared Japan was to encounter such a development of the situation is amply demonstrated by the fact that it was not until about a month after the Marco Polo Bridge incident occurred that the actual dispatch of Japanese troops to the Continent was decided upon.

Similarly at Shanghai, if there were not 100,000 Chinese troops invading the demilitarized zone—which had been marked out by international agreement to safeguard the city in 1932—an action menacing the lives of the 30,000 Japanese residents in that area, the present hostilities there would not have occurred. Thus, entirely unexpectedly the present situation was thrust upon Japan. It was against the wish of Japan, as well as against the wish of all Western Powers, that she should take military action in China.

But I hope the end is now near. With the fall of Nanking the military engagements will probably cease and constructive negotiations will be undertaken.

At present the question at Shanghai is how to take care of the political vacuum left by the retreat of Chinese authorities. Until the final settlement of hostilities is reached, Japan will have to act as the trustee of law and order in Shanghai in place of the Chinese authorities that used to be in force. Japan has therefore undertaken the supervision of the telephone, telegraph and postal services. An undertstanding has been reached between the Japanese authorities, the International Municipal Council and the representatives of interested Powers in that respect.

(Continued on page 127)

Rebirth of the Asiatic Races?

(Translated from the "Kaizo" by "Contemporary Opinion")

THE present China affair is one of the most deplorable events in the history of the Japanese and Chinese peoples. It is lamentable that Japan had to resort to force of arms with the object of punishing the mistaken anti-Japanese policy of the Chiang régime. But if this tragedy of bloodshed should awaken, as no doubt it will, the Chinese masses to the mission of Asia and ultimately establish peace in Asia, then the present incident would form the starting-point of a new Asiatic life. Already in North China and in the regions south of the Yangtze, where the Imperial army and navy have achieved a signal victory, have sprung into existence new régimes based on a genuine awakening of the Chinese people at large.

Japan's military operations started by no means from any intention of carving a slice of Chinese territory or of conquering the Chinese people. What Japan expects from her neighbor is the stamping out of the provocative anti-Japanese elements, the co-operation of both races on a basts of equality and reciprocity, and the making of a great combination with a view to promoting peace in East Asia in a spirit of benevolence and mutual aid. The relation between Japan and China is not, therefore, that of conqueror and conquered. Confucius emphasized the importance of the virtue of faith. Verily, it is necessary for China and Japan to stand by each other, bearing in mind the virtue of fidelity. So far as our Government and people are concerned, they are not chary of co-operating, with respect and fidelity, with China's new régimes founded upon the will of the people at large.

Japanese Aims

The object of Japan's continental policy, which follows the dictates of the Asiatic spirit, is to promote the welfare of the peoples of East Asia and to uphold international justice by defying all utilitarian self-interest. Ever since the Manchurian Incident Japan has been lending Manchoukuo every possible assistance and support, devoting the past six years to furthering the growth of this new independent state. She took the responsibility of maintaining peace and order in East Asia and regarded it as her mission to lay the foundation of an Asiatic bloc of China, Manchoukuo and Japan, by sinking her own interests.

The China affair was a tragedy that broke out while Japan was thus endeavoring for the peace of East Asia. The armed resistance of the anti-Japanese régime was born of failure on the part of China to recognize the fact that now is the time for the Asiatic peoples to be reorganized, under the guidance of Japan, so as to reassert themselves with united efforts. The Nanking Government is a factional one which, content with being in the position of a semi-colonial independent country, has been out to grow fat on the diet of exploitation. It seems but natural, therefore, that it should now be approaching its fatal termination after its futile attempt to thwart Japan's intention of fulfilling her mission to further continental development.

The China affair has a significance in the world history, in that it will give, under the leadership of progressive Japan, a golden opportunity for a re-birth of the Asiatic races and that it will establish peace in Asia on a basis of Sino-Japanese co-operation.

The history of the Han race is a history of repeated strife against the southward advance of an alien race or races of the North. The Great Walls are not only symbolical of this history of racial strife, but are also eloquent of the fact that the Han race has always been in the position of a conquered race where the southward advance of aliens is concerned.

Since remote antiquity Japan has often been menaced by alien races which occupied a position of predominance on the Asiatic continent. All the internal troubles that took place in Japan before the Christian era were due to the instigations of alien elements that had their headquarters on the continent. The Korean expedition by the Empress Jingu was a war to end both this menace from the continent and the internal troubles. Ever since Japan's actions on the Asiatic continent have been actions of self-preservation taken in defiance of the continental pressure brought to bear on her. Of this the Korean expedition by Toyotomi Hideyoshi in the sixteenth century, the advocacy of Korean invasion championed in the early years of Meiji, the wars with China and Russia, and the Manchurian Incident are eloquent illustrations.

Progress Made

Mention may be made of the phenomenal progress Japan has made, in various fields of human endeavor, since Commodore Perry awakened her from a long slumber and persuaded her to abandon her policy of seculsion and open, or rather re-open, her country to foreign intercourse. Also remarkable has been the increase of population. In 1872 Japan's population was only 33,000,000. In 60 years or so it more than doubled, exceeding 100,000,000, inclusive of the residents abroad: that is, about one-twentieth of the world's population and one-eleventh of the population of Asia. The density of population is 60 per square kilometer, ranking fourth in the world. When calculation is made of the arable area only, excluding the mountainous regions, Japan's population per square kilometer of arable land is 1,000, which is 200 times larger than that of Holland, a country possessed of the highest population density in the world. So great is the fecundity of Japan's millions.

The culture of the Japanese race was achieved by the process of grafting the quintessence of Western civilization upon the stock of Oriental civilization. It stands to reason that the surplus vitality of the Japanese should flow out of the country. This phenomenon is clearly shown by the advance of Japan's foreign trade. Taking 100 to be the figure representing Japan's exports and imports in 1913, you will find that the exports and imports figures for 1936 increased to 244.4 and 309.5 respectively. Then, again, the progress in shipping has been equally considerable. Prior to the Russo-Japanese War Japan's shipping totaled 660,000 tons; now she possesses the third largest fleet of merchantmen in the world, with a total tonnage of 3,900,000.

Be that as it may, trade barriers have been, and still are being, raised against Japanese goods, which are superior in quality and low in price, not only in British colonies and dominions, but also in many other parts of the world. Then, in point of emigration, Japan is no less unfortunate. California, many of the countries in South America, Australia and New Zealand have closed their doors to Japanese immigration. Young Japan has only the Asiatic continent left open as an outlet for her expansion. The number of Japanese residing abroad increased by 300,000 in the five years 1930-35, of which two-thirds was absorbed by the Asiatic continent. Moreover, Japan's investment in Manchoukuo, amounting to Y.1,200,000,000 for the past six years, speaks eloquently of the development of the Japanese race.

Reference has already been made to the repetition of the southward advance of aliens of the North, a movement to which the Han race was subject. It may not be too much to say that the establishment of an inseparable relationship between Japan and Manchoukuo, and the occupation by the former of a predominant position in Manchuria, may be regarded as a twentieth-century manifestation of such another southward movement.

It is true that the Han race was conquered by alien races moving down from the North, but the conquered succeeded in softening the race that made the conquest, by virtue of their own culture, as by sweet reasonableness. Japan's advance to China is not, however, a case of conquest by force of arms. As already stated, her advance to China has for its object the awakening of the Chinese people, some 400,000,000 in number, to the necessity for co-operation among the Asiatic races in order to promote the welfare of, and bring prosperity to, mankind. Japan nurses no territorial ambition, nor does she intend to treat China as a conqueror would treat the conquered. She only aims at making away with China's anti-Japanese policy; at punishing the régime which does not scruple to make common cause with the international communist party, the destroyer of culture.

The Chiang régime which, oblivious of the culture of the East, refused to co-operate with Japan in the task of promoting the welfare of the Asiatic peoples and induced the Comintern to make inroads into the Far East, must by no means be tolerated. Japan's positive advance to China with a view to saving the emigrant from the clutches of red imperialism is an urgent need. What is particularly important at a time like the present, when the world is forming, geographically, an economic bloc and is heightening tariff walls, is for the Asiatic peoples to go hand in hand with one another in achieving economic development and political security based on cultural co-operation.

The state of stagnation in which the Asiatic races have been in modern times is due to their disregard of, if not utter indifference to, the economic laws. They showed a great capacity for lifting the level of spiritual culture, but paid little attention to the necessity for material prosperity. The progress of the world has been such that a nation can no longer afford to remain satisfied with the natural resources of its own. In order to fulfil the cultural mission of a race, it is necessary to expand its spheres of free activity, both culturally and economically.

For Japan, Manchoukuo and China to make a strong combination and to maintain their position in international competition, nothing is more important than the cementing of their mutual economic relations. This is particularly so in these days, when the formation of an economic bloc is the rule in the world. Britain and America, possessing, as they do, under the machinery of bloc economy, enough resources and to spare, do not feel the necessity of looking to China for agricultural and mining resources ; all they need to do is to keep China as a market within the sphere of their economic activity.

In supplying Japan's heavy and light industries with the necessary raw materials the more important of China's natural resources, such as iron, coal, salt, raw cotton, wool, wheat, etc., have a geographical advantage over similar materials produced in other countries. At the same time, China's economy is in a position to achieve, with the aid of the industries of Japan, the most effective, constructive work. Japan, on the other hand, can supply China with articles cheap in price and good in quality, so as to enrich the life of the Chinese people at large. Thus the interests of one country are completely commensurate with those of the other. The adoption by the Chiang régime, however, of a policy of depending on Britain and America to the utter disregard of this economic relation, has produced deplorable results. The British and American economic activities in China have been limited to expansion of armaments through sales of arms, the construction of railways (unproductive ones built mainly for military purposes rather than for industrial development), the construction of roads and the reform of the currency system. Little attention was given to industrial development calculated to enhance the life of the people at large. Under such circumstances, poor local farmers were plunged into the depth of misery. China has to thank the anti-Japanese Chiang régime, the guiding principles of which are incompatible with the realities of entire Asia, for her paralyzed and crippled economy.

Bright Future

China is now on the brink of ruin, having disclosed the weakness of her economic system based on a policy of depending on Britain and America. But this national disaster may yet prove a blessing in disguise. For economic co-operation between Japan, Manchoukuo and China is about to be born of an awakening of the Chinese people. The new régimes in China are fully alive to the dire necessity for such co-operation. Thus the Sino-Japanese economic collaboration with Chosen and Manchuria, placed within its sphere of activity, has a bright future before it.

The progress Japan has recently made in science is regarded as one of the world wonders. Japan adopted the material civilization and thoroughly assimilated it. Science and skill as acquired by the Japanese people are a most effective, and therefore valuable, asset in developing China's resources. An example will suffice. Some years ago seeds of American raw cotton of a superior variety were planted in Shantung Province, but it was found that the quality of the species deteriorated year after year. On the contrary, the process adopted by some Japanese agricultural experts proved a great success. The process in question was to sow seeds of American raw cotton in Chosen, where a new variety suitable to the soil was thus obtained. Seeds of this new variety were then transplanted to the soil of Shantung Province, with the result that the yield began to increase from year to year. This only shows that agriculture in China is capable of being developed with the help of Japanese agricultural technique.

China's co-operation with Japan and Manchoukuo is, then, the only and the best way of securing her political and economic independence. To guarantee an increase of prosperity in Asia by means of an economic co-operation based on the principle of equality and reciprocity it is necessary to make a hundred per cent use of the economic power of Asia.

Is China the Under-dog ?

(Continued from page 125)

As to the Maritime Customs, there occurred some questions because of the technical nature of the institution and its historic complexities. Several interested Powers, including the United States, have made representations to Japan in regard to the Customs. Japan's position is that the Chinese Maritime Customs administration is a Chinese administration. The Inspector-General is a British subject and the Chief Secretary is a Japanese, and there are several other foreign high officials in the institution. They are all, however, officials in the employ of the Chinese Government. The fact that a portion of the Customs revenue is earmarked in the interests of several countries as payments for loans does not alter the fact that it is a Chinese administrative department.

Japan is now negotiating with this Chinese institution as to the manner in which it should be carried on pending the cessation of hostilities. In those negotiations Japan is paying full respect to the interests and rights of the other Powers. There may be discussions regarding technical niceties, but there can be no doubt that a *modus viendi* will be worked out to the satisfaction of all Powers interested.

As our Prime Minister said in his address before the Diet, Japan is not fighting the Chinese people as a whole, but only those politicians and militarists who are bent upon their personal ascendancy. Ninety per cent of the Chinese people—who are laborers, artisans, farmers, fishermen, and merchants—have nothing to do with the conflict and care little what the outcome will be. Against these masses of people Japan has no conflict. Our people can get along amicably with them, and they with us, when the Chinese militarists and politicians are brought to reasonable terms.

It has always been the case in history that the rise of a new power in the family of nations is viewed with some resentment and distrust by older members. These misgivings appear to be derived from the mistaken idea that there can only be so much power in the world, and that if one nation increases its measure some other nation or nations will be the loser. That was why British public opinion was pleased when the Civil War broke out in the United States, as historians record. The British as a whole were jealous and distrustful of the increasing strength of the young American Republic. Early in the war they made no secret of their sympathy with the Confederate States. To them a divided America was much safer than a unified America. An historian of the time wrote :

"Since England committed the unpardonable blunder from her point of view of not supporting the Southern States . . . a rival to England's worldwide Empire has appeared . . . in the form of the United States."

But in 1917 the strong and united America which Britain had mistrusted proved to be Britain's bulwark of hope, and since that memorable year Great Britain thinks of the power and worth of the United States as something to be relied upon in an hour of need. Historical parallels are seldom exact, but a powerful Japan in the Far East, with sufficient strength and prestige to help maintain law and order in that part of the world, warding off such world menaces as that of Communism, may yet be a very real contribution to the peace and stability in Asia and even the world as a whole.

Soviet Activity in Siberia

By KAKUZO MAESHIBA

[A recent and highly significant record, in which a detailed description is given of Russian preparations for war in the Far East, is to be found in the following article by the Staff Correspondent of the "Tokyo Nichi Nichi" at Harbin and sent by him as a dispatch to his newspaper.]

* * *

The writer remarks that it is well known that Soviet-Japanese relations have become strained since the outbreak of the China Incident to the point where a mere touch or nudge may bring the explosion.

"Thus," he writes, "the antagonism between the Soviet Union and Japan has become one of the most pressing political problems of the moment. The most important factor to be considered in that connection is the actual state of the Far Eastern Red Army, which is a dagger pointed at the 'stabilizing force in the Orient.'

"The Far Eastern Red Army used to be only 50,000 to 60,000 strong, including four divisions of infantry, two of cavalry, 120 warplanes and a small number of tanks. By last year it was 300,000 strong, comprising 16 infantry divisions, four of cavalry, 120 tanks, 500 armored cars and 1.200 warplanes, including 120 heavy bombers. To this may be added the 20,000 to 40,000 men in the Outer Mongolian Army. Since 1932 the Soviets have spent 1,600,000,000 roubles building 'pillbox' fortifications along the 2,670-mile border between Siberia and Manchoukuo.

Amur River Fleet

"On the Amur River 15 gunboats, including several superior vessels of more than 1,000 tons, and other warships numbering 35 are now afloat under the designation of the Amur Fleet. Along the Pacific coast, with Vladivostok as the base, are more than 60 submarines, eight destroyers and 80 submarine-chasers, high-speed torpedo-boats, supported by an air force of some 100 naval planes.

"In the Kanchantzu Incident of June, 1936, which attracted world-wide attention, 40,000 land troops and more than 100 warplanes were massed near the scene, and the situation was reported grave. But the unflinching attitude of Japan and Manchoukuo checked the Soviet impulse, and the matter was settled by diplomatic negotiations.

"In the China Incident that followed the Soviets concluded a mutual assistance pact with China and now are supplying arms and ammunition to the Chinese army, building up the Far Eastern and Outer Mongolian armies while waiting for Japan to become exhausted in the struggle.

"There is no means of knowing exactly what is the extent of increase in armament the Soviets have effected in the Far Eastern Army since the outbreak of the China incident, but a rough picture may be obtained by putting together various fragmentary data.

Trains Being Delayed

"In regard to the increase in the strength of the army, delays in train schedules were frequently noticed on the Trans-Siberian line between October of last year and February of this year, although this is not unusual in the winter. In that period there was a total delay of 876 hours. Travellers ascribe this delay to the congestion wrought by transportation of troops and munitions.

"Mr. H. R. Knickerbocker, International News Service Correspondent, who went from Vladivostok to Europe toward the end of last year, reports that the Far Eastern Army numbers several hundred thousand. If he means regulars, it seems an over-estimation, but the first-line armament may be considered to have been doubled. Mr. Knickerbocker also reports that the Far Eastern air force has about 2,000 warplanes. This figure seems to be correct, or very near the mark, as it is reported that the Soviets, in view of the unexpected strength of the Japanese air force shown in the China incident, have transferred part of the Kiev air force to the Far East.

"In his 20th Red Army anniversary speech, Marshal K. E. Voroshilov recognized the independent rôle of the air force and definitely stated that the Far Eastern air force would be increased. In regard to increase in the strength of the Pacific Fleet, it is reported that two cruisers, six destroyers and 18 submarines are proceeding to Vladivostok from Sebastopol and that more ships are being built at Vladivostok.

"The forts on the Vladivostok and Novick bays now boast of impregnability, with all modern scientific aspects of fortification concentrated in them. The Soviets now are planning to build naval stations at Oliga, Sov-Gavani, Decastri and other ports.

Alien Races Moved

"The tochikas or 'pillboxes' along the border are being strengthened in the light of experience of the China hostilities. Fortifications also are being erected on the Outer-Inner Mongolian border.

"The compulsory migration of Koreans from the eastern border area last fall was an issue from the standpoint of humanity, but between September last year and March this year various races have been ordered out of the border area anywhere within 10 miles of the border. These steps undoubtedly are in line with preparations to clear the area of other races in order to station pure Russian farmer-soldiers along the border.

"As the Sino-Japanese hostilities developed, the Soviet Far Eastern Army was reorganized last fall, and a system of military districts after the one in force in European Russia was laid out, notably the Maritime Provincial, Amur and Lower Amur military districts. The Zabaikal Military District and the Outer Mongolia Expeditionary Army, and through it the Outer Mongolia Army, were placed under the jurisdiction of the three military district commanders. The commander-in-chief is still Marshal Vassily Bluecher, although various rumors have been current concerning him.

"The Maritime Provincial Army has built large-scale air bases at Vladivostok and Sitkovo to watch over the Japanese seacoast and the Manchurian-Korean border. The Amur and Lower Amur armies are deployed on the bank of the Amur, with Blagoveschensk and Habarovsk as centers, establishing their air bases at Habarovsk, Bochikareo, Blagoveschensk, Ekaterislavka and other places. The Zabaikal Army is guarding the Siberian line between Dauria and Chita to ensure the security of the arterial system of munitions and troop transportation. The Outer Mongolians are stationed near the Inner Mongolian border and are awaiting their chance.

Concentrate on Railways

"There can be no question that such an extensive geographic development of strategic plans becomes efficient only through full adjustment of transportation facilities. Thus the Soviets are doing their best to put in order the railway lines running through the Ural-Kuzbath industrial area from European Russia to the Far East via the Angara-Baikal industrial center. They completed double-tracking the Karuimuskaya-Habarovsk line at the end of last year and increased the transportation capacity of the line by 100 per cent. Double-tracking of the Habarovsk-Vladivostok line was to have been completed last fall. It should be completed now, together with changes effected in sections inconvenient for strategic reasons.

"The Karuimuskaya-Manchuli line also has been double-tracked, and in this way the transportation capacity of the Soviet railways running up to the Manchoukuo border has been doubled since the end of last year. Repairs are also progressing on the various branches running to the border line from the Habarovsk-Karuimuskaya trunk line and the Hanka line.

"The most important of these from the strategic viewpoint is the construction under way from Taishet to Sov-Gavani, on the Tartar Strait, via Usti-Kurt, on the River Lena, northern end of the Baikal Lake and Komsomolisk. This 2,320-mile trunk line is to branch out into the Komsomolisk-Habarovsk, Komsomolisk-

(Continued on page 134)

Communist Plottings in the Far East

I.—THE COMINTERN'S POLICY OF SOVIETIZING EAST ASIA

IMMEDIATELY after the opening of the Sixth Congress of the Comintern in Moscow in the summer of 1928, the Soviet Union, "the birthplace of Communism," launched its first five-year plan of economic development of the country. Under the slogan "Overtake and Outstrip the Capitalistic Nations," the Stalin Government undertook to realize its ambitious project for the development of heavy industries. Giving the world the impression of eliminating hunger and destitution of the masses in time of need, the Stalin régime enforced severe and oppressive measures, and blindly pushed its plans forward.

For several years since 1928, Soviet Russia was so busily absorbed in its internal affairs that it had no reserve energy to show interest in its fundamental mission of "Sovietizing the world." Under these circumstances there was no alternative for it but to follow a peaceful foreign policy of international collaboration which has come to be known as "Litvinov Diplomacy." This is attested to by the fact that the Seventh Congress of the Comintern, originally scheduled to be held in 1930 (two years after the Sixth Congress), was postponed until July 25, 1935.

After completing the First Five-Year Plan, the Stalin régime moderated its extreme policy and launched its Second Five-Year Plan. Owing to this moderation and to bumper crops obtained yearly following the execution of the Second Five-Year Plan, it was able to extricate itself from the critical situation prevailing at the time. The Soviet Government has now abandoned its former policy of establishing a sound national economic structure in European Russia and is feverishly engaged in replenishing its already formidable military force and in exploiting the vast natural resources of its Far Eastern territory.

At the Seventh Comintern Congress, Soviet Russia not only reaffirmed that it had no intention whatsoever of abandoning its attempt to Sovietize the world but, believing that conflict between the capitalistic and socialistic worlds was unavoidable, made clear its attitude to embark upon an active campaign for the realization of this ambition. Emboldened by the Soviet attitude, the Congress, to the indignation and perturbation of the Powers which had hitherto taken a peaceful attitude towards the Soviet foreign policy of "international collaboration," adopted a resolution in favor of making renewed efforts to bring about a world proletariat revolution. This resolution drew forth vigorous protests from the United States, Italy, Latvia and Japan.

Analysing the present international political situation, the Seventh Comintern Congress emphasized :

> The world economic crisis and the collapse of capitalism have produced a disturbing effect on all international relations. The intense competition in the world markets, which have become extremely inactive due to the world economic depression, has changed to a severe economic war. The beginning of the repartitioning of the world is now an established fact.*

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*Resolution passed by the Seventh Congress on August 20 on the basis of a report submitted by Delegate Erkoli.

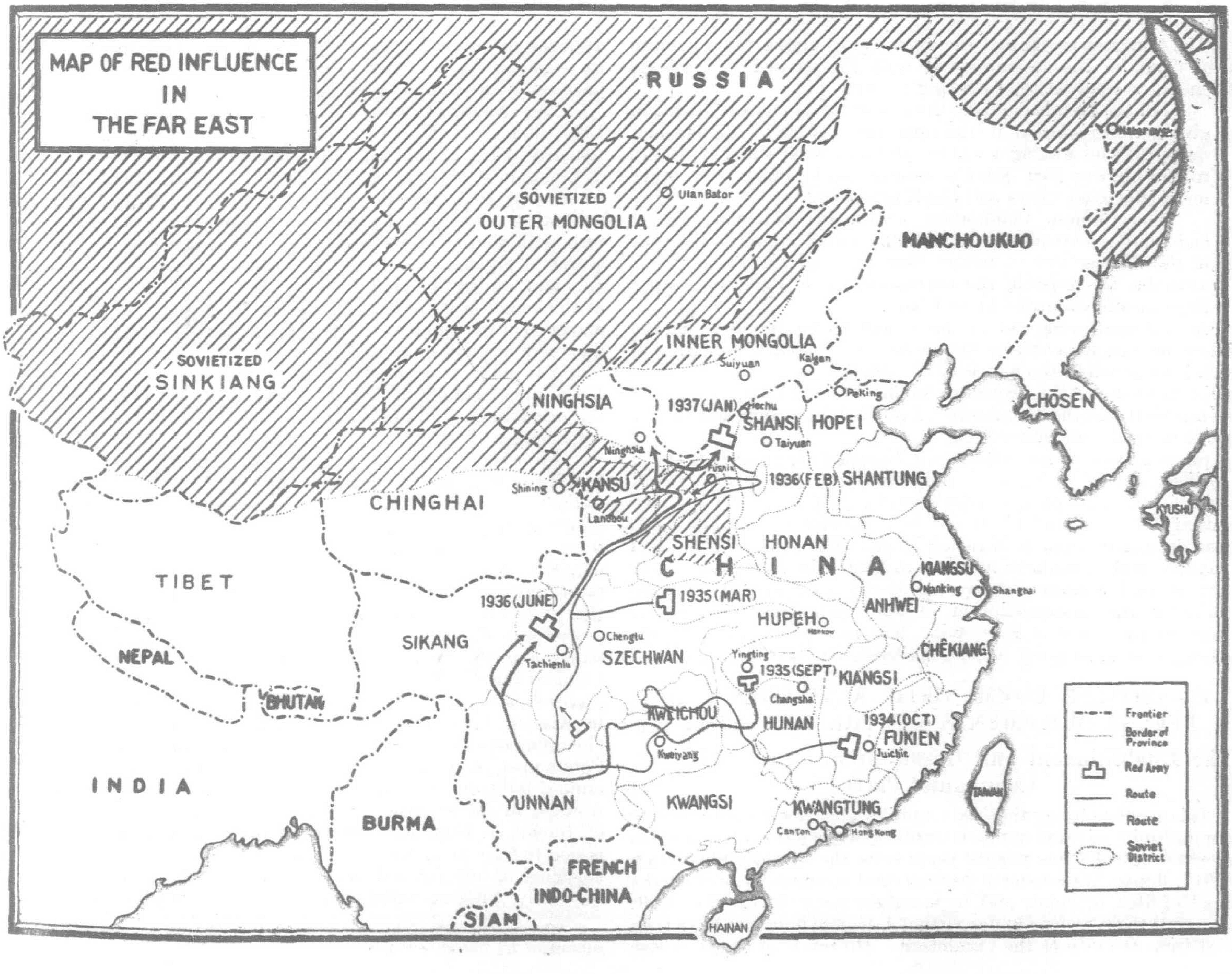
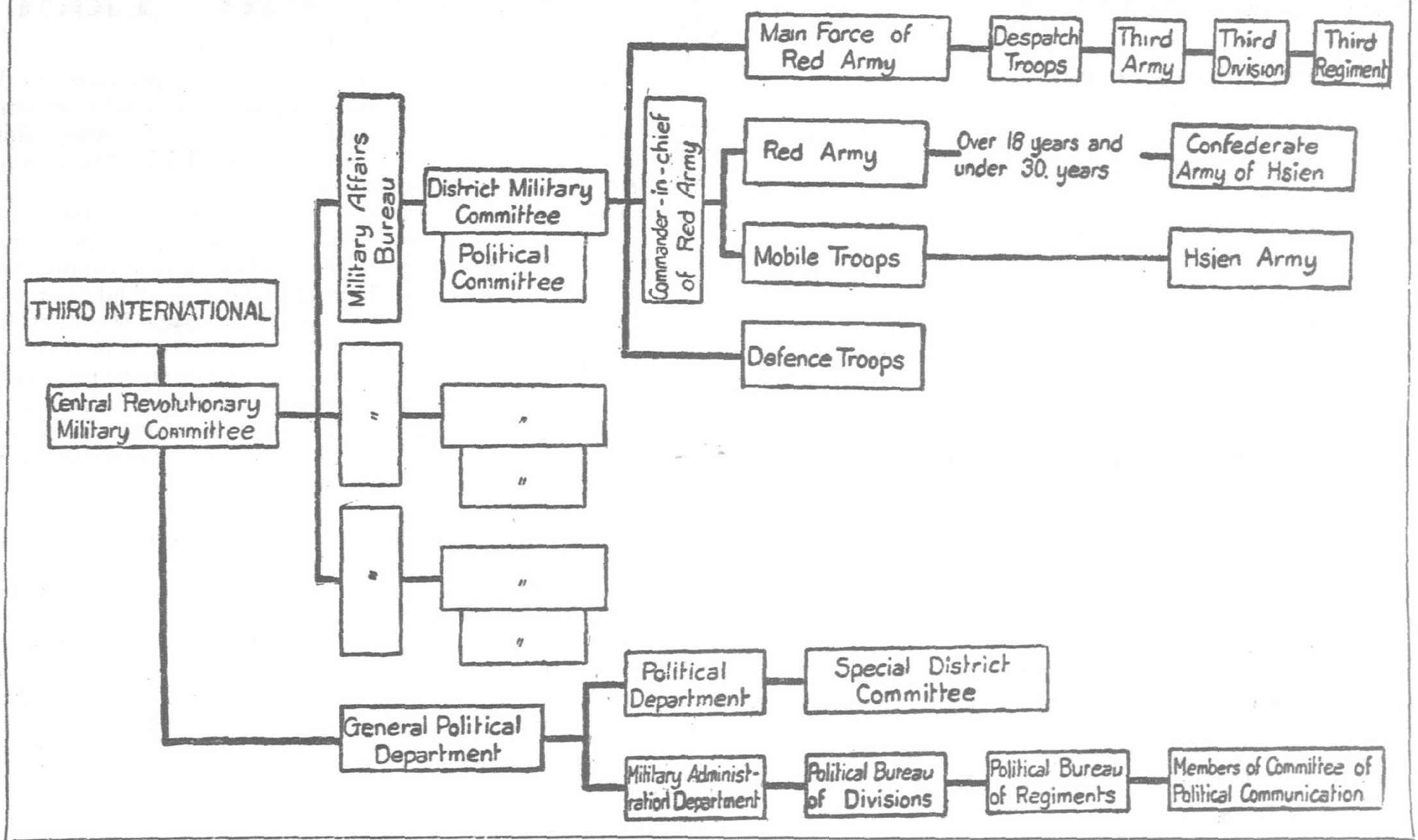


Diagram of the Organization of the Chinese Red Army


Main Force of Red Army
Despatch Troops
Third Army
Third Division
Third Regiment
Military Affairs Bureau
District Military Committee
Political Committee
Commander-in-chief of Red Army
Red Army
Over 18 years and under 30 years
Confederate Army of Hsien
Mobile Troops
Hsien Army
THIRD INTERNATIONAL
Defence Troops
Central Revolutionary Military Committee
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Political Department
Special District Committee
General Political Department
Military Administration Department
Political Bureau of Divisions
Political Bureau of Regiments
Members of Committee of Political Communication

The Congress recognized the necessity of organizing a definite united front for the destruction of both Fascist and imperialistic influences, and passed the following resolution :*

> All the members of the Comintern are under obligation to give positive support to the oppressed people of colonies and quasi-colonies waging a war for racial emancipation, especially to the Chinese Red Army's struggle with Japan and other imperialistic countries and the Kuomintang.
>
> The Chinese Communist Party, in particular, should endeavor to extend the front of the racial emancipation war of the Chinese and to concentrate in it all the racial power available for resisting the encroachment of Japan and other imperialistic countries upon China.

At the same time, as to the tactics to be employed in the struggle against imperialism, the Comintern passed a resolution in which it emphasized the necessity of bringing the movement of the weaker races under the protection of the Soviet Union. From the above resolutions the Comintern's Far Eastern policy and tactics may be generally understood.

Since the Communist activities in Europe have recently received a set-back owing to vigorous opposition put up against Soviet Russia by the European Fascist countries, the Comintern is now directing its spearhead of attack on countries in the Far East, whose defensive strength is rather weak. The marked expansion of the sphere of Communist influence in East Asia, the strengthening of the Soviet Far Eastern Army, and the Red advance in China are facilitating the materialization of the Comintern's scheme to Bolshevize the whole of East Asia. The important mission which the Comintern is carrying out, needs therefore to be watched closely.

II.—CHINESE COMMUNISTIC ACTIVITIES AND RECENT MOVEMENTS OF THE RED ARMY

The Establishment and Organization of the Chinese Communist Party

It is needless to say that the Comintern has always been seeking an opportunity to bring as much territory in the Far East as possible under its control. For twenty years since the Russian Revolution of 1917, Japan has mustered her national strength to prevent the spread of Red influence and to maintain peace in the Far East. As a result those regions under virtual Japanese influence have been saved from the grip of the Comintern. However, in China, whose national structure is extremely weak, the Comintern has been able to continue its activities either openly or secretly, through the medium of the Chinese Communist Party.

The Chinese Communist Party was established in Shanghai in 1920 soon after the arrival in China of Vertinsky who was despatched by the Comintern to formulate a policy for the propagation of Communist ideas in the Far Eastern regions. Since 1923 it has functioned as a branch of the Comintern. At the time of its formation it was nothing more than a meeting of a small group of men with similar ideals, but it was not long before it grew into a powerful organization. Its membership increased at an amazing rate and, during the period from 1925 to 1927, when the Party was at the height of its power, the number of members was said to have exceeded five hundred thousand. The acquisition of so many members at that time was due, however, to the open adoption of Sun Yat-sen's three great policies for the execution of the National Revolution, namely, accord between China and the Soviet Union, the acceptance of Communism, and assistance to the peasants and workmen.

After the " Purification " *coups d'état* of April 1927 (executed by Chiang Kai-shek in Shanghai on April 12 and by Li Chi-shen in Canton on April 15), the Party gradually lost its influence until finally it was compelled to become an illegal organization resorting to underground tactics. But by the outbreak of such extraordinary incidents as the Canton Commune of December 1927, and the establishment of the Changsha Soviet in August 1930, it proved that it had by no means vanished into oblivion and that its latent power was not a negligible factor in Chinese politics. The Red Army and the Soviet district which were formed early in 1928 repulsed the five general drives of the National Army under Chiang Kai-shek and, in 1931, even went so far as to establish at Juichin, in Kiangsi Province, a proletariat régime called the Provisional Government of the Chinese Republic. The large-scale anti-Communist campaign, which had exhausted the greater part of the annual military expenditures of the Nanking Government, finally resulted in the expulsion of the main forces of the Red Army out of Juichin in 1934, but this abandonment of Juichin by the Reds is said to have been due to strategic reasons. The fact that without engaging in any pitched battle with the Nanking Army and consequently without suffering any serious losses in their fighting

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*Resolution passed by the Seventh Congress on the basis of a report submitted by Delegate Erkoli.

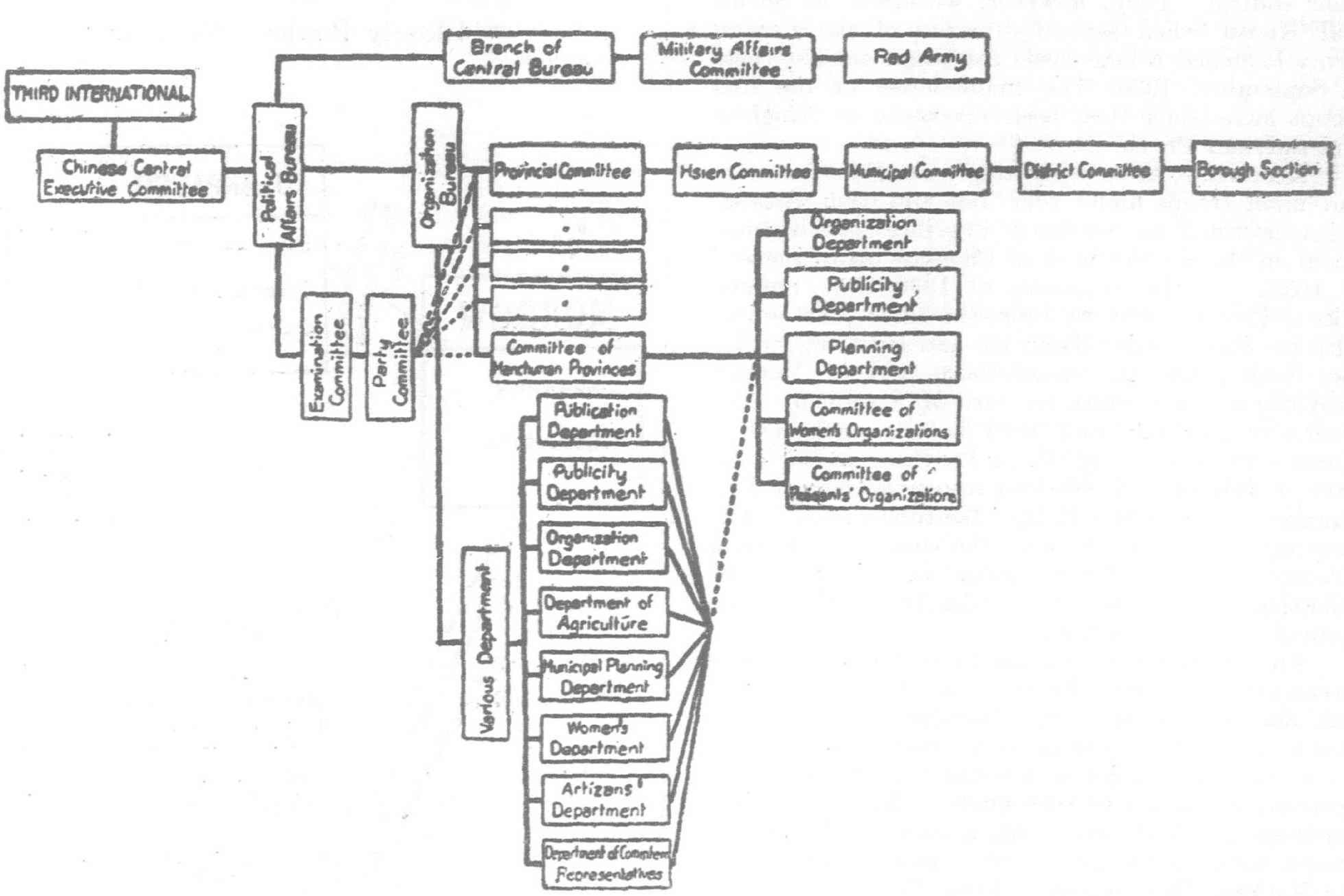

Diagram of the Organization of the Chinese Communist Party

strength, the Red troops succeeded in moving westward in a vast contingent, forecasting the future recovery of the Communist Army.

Concerning the Communist movement in China "The Report of the League Commission on the Sino-Japanese Dispute" (1929) mentions a few characteristic points and indicates the fact that the Chinese Communist Party, as a strong adversary of the Nanking Government, has complicated relationship with the Nanking régime :

> Communism in China not only means, as in most countries other than the U.S.S.R., either a political doctrine held by certain members of existing parties, or the organization of a special party to compete for power with other political parties. It has become an actual rival of the National Government. It possesses its own law, army and government and its own territorial sphere of action. For this state of affairs there is no parallel in any other country. Moreover, in China the disturbances created by the communist war is made more serious by the fact that the country is going through a critical period of internal reconstruction, still further complicated during the last eleven months by an external crisis of exceptional gravity. The National Government seems to be determined to regain the control of the districts under the communist influence, and to pursue in these districts, once their recovery is achieved, a policy of economic rehabilitation.

The Chinese Communist Party owed its birth to some ten leftist students and scholars who initiated the Chinese proletariat movement. The success of the Communists in growing into a powerful organization in control of a vast territory,* despite the fact that economically, China was in a state of infancy, was due, in a measure, to the peculiar social conditions prevailing in the country at that time. Even given such social conditions, however, the phenomenal success of the Reds could not have been achieved without the spiritual and material assistance rendered by the Comintern which succeeded in winning over the support of the Chinese people under the pretext of waging warfare against the foreign capitalists. Behind the activities of the Communist Party and the Red Army of China, which comprised a powerful influence against the National Government, however, could be discerned the plans of Soviet Russia working through the Comintern. Needless to say, the significance of this fact and the decisive rôle played by the Soviet Union in the Red advance in China cannot be overestimated.

Recent Movements of the Red Army

As previously mentioned, the Chinese Communist Party established the Provisional Government of the Chinese Soviet Republic at Juichin in November, 1931, and, with the aid of its powerful Red Army, became a big threat to the Nanking Government. However, it was unable to withstand both the repeated large-scale campaigns conducted by Chiang Kai-shek's Central Army and the economic blockade of its territory, and was finally forced to abandon Juichin on November 10, 1934.

The main forces of the Red Army under Chu Teh and Mao Tse-tung, which numbered about fifty thousand, following their evacuation of Juichin, gradually moved westward to the frontier of Hunan, then marched through the provinces of Kweichow and Yunnan, and entered the northwestern part of Szechuen in June, 1935. There they succeeded in uniting with Hsu Hsiang-chien's powerful Fourth Red Army comprising 50,000 men, which had been active in the northeastern part of Szechuen Province. Its political commissioner, Chang Kuo-tao, was one of the leaders of the Chinese Communist Party. For eight months after their withdrawal from the Soviet capital, the Red forces marched westward in a zigzag course for six to ten thousand kilometers, truly an astonishing feat in military history.

The following month, namely in July, the combined Red forces commenced their march northward to the frontier districts of Kansu and Chinghai. But in August, this Red Army, owing to a divergence of opinion among the leaders as to the course to be followed in future, split up. Mao Tse-tung, who advocated the northward march in order to establish a new Soviet district in close co-operation with the Soviets, proceeded northeastward and entered Kansu Province, while Chang Kuo-tao, who favored a southward advance, marched towards the Yaan region with the majority of the troops of Chu Teh and Hsu Hsiang-chien.

The troops which followed Mao Tse-tung to Kansu numbered twenty thousand and comprised the pick of the Red Army. From Kansu they advanced to Shensi Province, picking up associates wherever they could during their march. In the winter of 1935 they united with the divisions under Liu Tsu-tan and Hsu Hai-tung, which had been active in that province, and extended the sphere of influence of the Shensi Soviet Government. The Red troops under Hsu and Liu had their base in the north of Shensi Province for a long time and, after their union with Mao Tse-tung's troops, were able to adopt active measures in their movements.

At the beginning of 1935, the combined Communist troops advanced into Shansi Province and broke through the strong defences of Yen Hsi-shan's army. By February 1936, they had brought the greater part of Shansi under their control. They, however, withdrew to Shensi and Kansu when several divisions of the Central Army launched a large-scale campaign against them in September, 1936. The main forces of the Red troops have since then been operating in Ninghsia and Suiyuan Provinces.

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*In a report submitted to the 17th Congress of the Soviet Communist Party, held in February, 1934, Dmitry Manuilsky stated that the Chinese Communist Party ranked next to the Soviet Communist Party, and its membership had increased by 120,000 to 416,000 during the past one year. Its sphere of influence extended over an area covering 700,000 square kilometers, while the regular Red Army numbered 350,000, and the partisans, 600,000.

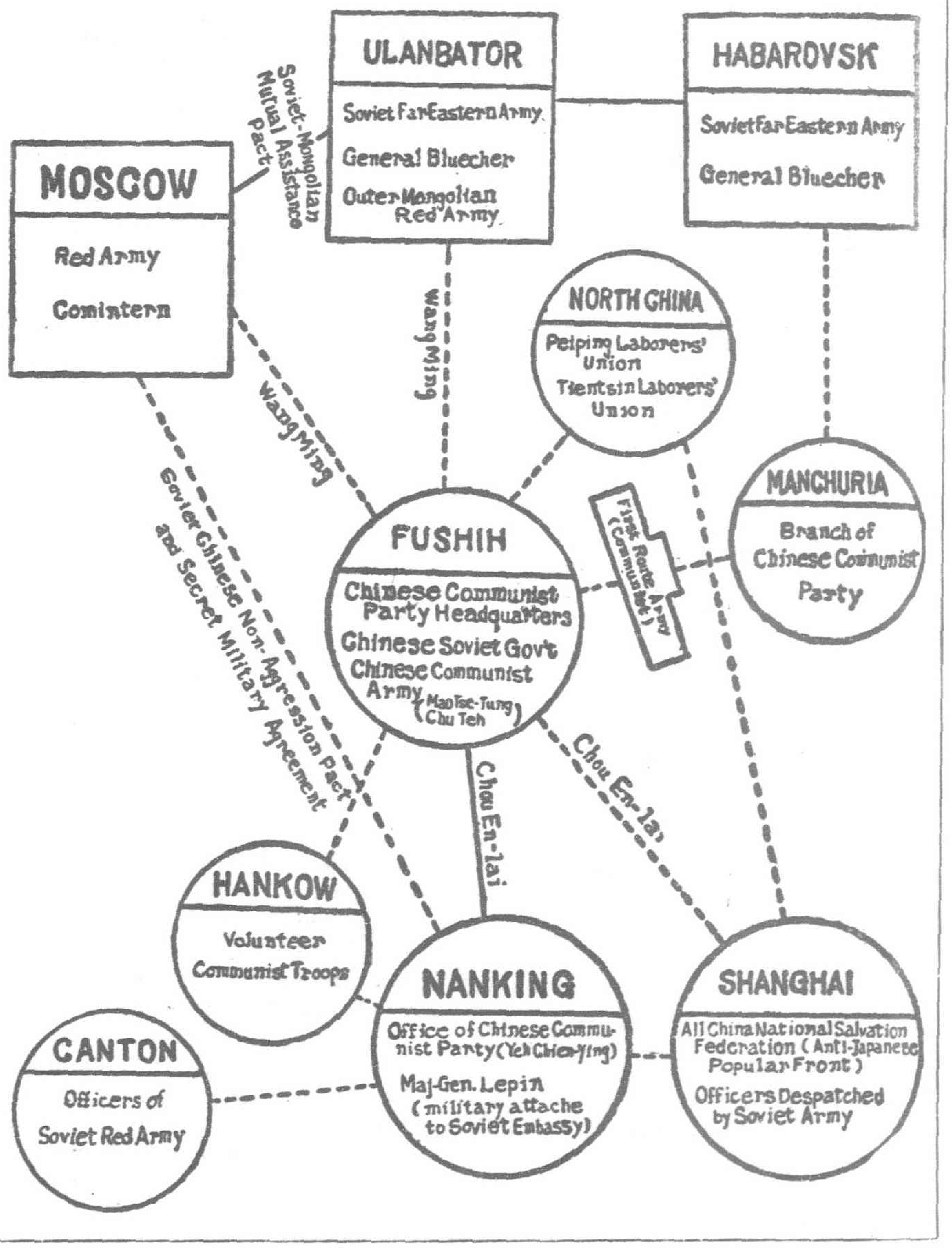
Meanwhile, after separating from Mao Tse-tung, the main troops under Chu Teh and Hsu Hsiang-chien returned to Szechuen Province and roamed about in the district west of Chengtu up to the end of 1935. At the beginning of 1936 they entered Sikang Province and, in June, the same year, united with the forces under Hsiao Ko and Ho Lung, which had been active in the northern part of Yunnan Province and the southern part of Szechuen. The leaders of the combined army held a conference at Kantzu, in the north of Sikang Province, in the latter part of July, and decided to return to Kansu Province and to re-unite with Mao Tse-tung's troops. The meeting also decided to send the troops under Hsiao Ko and Ho Lung to Mongolia via Chinghai. The following month vanguard of Chu Teh's troops commenced its march to Kansu.

After separating for some time, the above forces advanced into Shensi Province at the beginning of 1937 and assembled in the districts around Fushih (Yenan). With these regions as their base of operations, these Red forces, numbering seventy thousand, operated in Shansi and Suiyuan. When the Sino-Japanese Incident broke out, a portion of the Red troops, comprised of 20,000 men, was organized into the National Revolutionary First Route Army and is now fighting against the Japanese troops.

After the fall of Juichin, the seat of the Provisional Government of the Chinese Soviet Republic, the Chinese Communist Party changed its headquarters from one place to another. Finally in February, 1935, the Party's headquarters was re-established in Shanghai, but owing to the growing intensity of the anti-Communist campaign conducted by the Kuomintang and the Blue Shirt Society, which resulted in the arrest of many of its members, the Party's influence declined for a time.

Under these circumstances the Communist Party abandoned its policy of devoting all its efforts to the establishment of Soviet districts, and adopted a policy of acquiring the support of the masses in the cities, namely, that of the intelligentsia, of the small propertied classes and of the laborers. They offered to unite with any organizations or parties, including the Kuomintang, for the purpose of organizing a united front against imperialism and Japan.

Chart Showing Network of Communist Ties Closely Binding Moscow and Nanking.


MOSCOW
Red Army
Comintern
Soviet-Mongolian Mutual Assistance Pact
ULANBATOR
Soviet Far Eastern Army
General Bluecher
Outer Mongolian Red Army
HABAROVSK
Soviet Far Eastern Army
General Bluecher
Wang Ming
Wang Ming
NORTH CHINA
Peiping Laborers' Union
Tientsin Laborers' Union
MANCHURIA
Branch of Chinese Communist Party
First Route Army (Communist)
Soviet Chinese Non-Aggression Pact and Secret Military Agreement
FUSHIH
Chinese Communist Party Headquarters
Chinese Soviet Gov't
Chinese Communist Army (Mao Tse-Tung, Chu Teh)
Chou En-lai
Chou En-lai
HANKOW
Volunteer Communist Troops
NANKING
Office of Chinese Communist Party (Yeh Chien-ying)
Maj-Gen. Lepin (military attache to Soviet Embassy)
SHANGHAI
All China National Salvation Federation (Anti-Japanese Popular Front)
Officers Despatched by Soviet Army
CANTON
Officers of Soviet Red Army

III.—INTENSIFICATION OF RED MANŒUVRES IN THE FAR EAST AND THE CHINA INCIDENT

The Significance of the Red-Nanking Rapprochement after the Sian Incident

On the occasion of its westward advance in the fall of 1933, the Chinese Communist Party issued a statement in which it advocated the formation of a unified anti-Japanese front of the masses, military forces and politicians for the purpose of entering into an armed struggle with Japan. This was followed by a manifesto entitled "Anti-Imperialism and Anti-Japanese National Salvation," issued on August 1, 1935, in which it clearly indicated its intention to adopt the new policy. This change in the Communist Party's policy was a memorable one and has produced no small effect upon the Far Eastern situation.

The principal object of the manifesto in question was immediate anti-Japanese resistance and the elimination of dangers to the Chinese race. For the realization of this aim, it called upon the people, the political factions, organizations and armies to discard past differences of opinion and enmity, and advocated (1) the establishment of an All China National Defence Government in co-operation with Soviet Russia and anti-Japanese régimes in the northeastern districts, and (2) the organization of the Chinese confederate Anti-Japanese Army, to be composed of the Red Army, the Northeastern People's Revolutionary Army and volunteer troops.

Believing that only an anti-Japanese popular front on a most extensive scale can subdue Japanese imperialism, the Central Political Bureau of the Chinese Communist Party, on the basis of resolutions passed by the Seventh Comintern Congress, issued on December 25, 1935, the following manifesto concerning the materialization of the new policy and the formation of the Anti-Imperialistic National Defence Government and the Confederate Anti-Japanese Army:

> In order to make efforts for the immediate establishment of a National Defence Government and a Confederate Anti-Japanese Army and to incorporate the undivided support of the general masses, at the same time strengthening their fighting power, the Chinese Communist Party shall actively form popular organizations, armed forces and anti-imperialistic and anti-Japanese organizations, and shall unite the political and military factions. These shall be supported by the Soviet Communist Army. Furthermore, in order to place the anti-Japanese unified front on a wide and strong basis, the "Soviet Industrial and Agricultural Republic" shall be changed into the "Soviet People's Republic," and to unite all classes in the struggle against imperialism and Japan, the policies hitherto pursued in the Soviet districts shall be changed."

In relation to the manifesto cited above, another statement which must not be overlooked in view of the fact that it voices the Communist Party's readiness to come to terms with Chiang Kai-shek, was issued on August 1, simultaneously with the manifesto.

> The Chinese Communist Party and the Red Army have time and again announced their readiness to reach a military accord with Nanking's Central Army for the purpose of conducting a joint military campaign against Japan. If Chiang Kai-shek should suspend his military operations against the Communist Army and direct his campaign against the Japanese, the Chinese Communist Party is prepared to form a joint front with him and his army to fight Japan.

Meanwhile, the Comintern, taking advantage of the change in the Chinese Communist Party's policy, plotted to bring China and Japan to a clash in anticipation that, by stirring up animosity against Japan among the Chinese people, on the one hand, and by assisting Chiang Kai-shek to strengthen Nanking's resistance against Japan, on the other, the Island Empire would reach the end of its endurance and cross the Rubicon. Needless to say, these Comintern's manœuvres were based on the Soviet's Far Eastern policy aiming at the prevention of a possible clash between Japan and Russia so that the latter's armament expansion program might be smoothly executed in order to be fully prepared to overpower Japan, and also at the complete Sovietization of China.

The growth of the Far Eastern Soviet Forces in recent year is shown in the following table.

	Full military strength	*Divisions of sharp shooters*	*Cavalry divisions*	*Air-planes*	*Tanks*	*Sub-marines*
1927 (Year before commencement of 1st Five-Year Plan)	—	4	1	—	—	—
Sino-Soviet clash of 1929	—	—	—	—	—	—
1931 (Outbreak of Manchurian Incident)	70,000	4	1	150	40	—
1933 (Commencement of 2nd Five-Year Plan)	170,000-180,000	9	1.5	350	300	5-6
1934	240,000	11	3	650	650	20
1935	250,000	12	3	750	650	30-40
1936 (Conclusion of Japan-Germany Anti Comintern Pact)	300,000	15	4-5	over 1,000	900	40-50
1937	320,000	16	4-5	1,200	1,200 (including 180 heavy bombers)	70

The Sian *coup d'état* executed by Chang Hsueh-liang in December, 1936, strongly reflected the trend of the anti-Japanese popular front movement. The amazing fact that Chiang Kai-shek was released on condition that the Nanking régime join hands with the Soviet Union, accept Communism and oppose Japan, cannot be readily understood without taking into account the manœuvres of the conspiring undersurface elements. As expected, later events conclusively revealed that the Sian coup was engineered by the Comintern which skilfully manipulated the former Mukden warlord and Yang Hu-cheng, commander of the Sian Army, through the agency of Wang Ming, Chinese representative of the Comintern in Moscow, and Chou En-Li chief adviser of the Chinese Communist Party. The Sian incident afforded an opportunity to bring the Chiang régime under complete Red control, and consequently shattered every hope of compromise with Japan.

The markedly intensified anti-Japanese activities in China recently are one manifestation of the workings of the Red popular front and constitute a special phase of the world popular front movement. In consequence, the various countries of the world must fully realize the danger of the Comintern's special tactics which seek first of all to crush its immediate enemy, Japan, who is the sole barrier against the Communist menace in the Far East. After this is accomplished, the Comintern plans to prepare for a war to attain world supremacy and communization.

Needless to say, with the equipment of the Soviet Army being strengthened to a phenomenal degree for the protection of Red activities in the Far East, centering around China, and the situation to-day developing to a point where the violent resolutions of the Seventh Comintern Congress in favor of an open challenge to Japan are in process of materialization, the Japanese Empire, which has hitherto been fighting a lone struggle for the peace of East Asia against the Communist menace, cannot by any means ignore these alarming developments.

The Communist Plot to Usurp Nanking's Power is Bared by the China Incident

As expected, the next stage in the rapprochement between the Nanking Government and the Chinese Communist Party was the Sovietization of the Nanking Government. On July 8, the day after the outbreak of the current China Incident, the Central Committee of the Chinese Communist Party issued an anti-Japanese manifesto throughout the country urging "the decisive defeat of the enemy, the participation of the entire armies of China in the hostilities, the extermination of traitors, and collaboration between the Nanking Government and the Chinese Communist Party."

In conjunction with this manifesto Chiang Kai-shek issued at Lushan on July 17, a statement, in the form of an interview, in which he announced his firm determination not to come to any form of compromise with Japan and to put up thorough-going resistance against Japan. His statement concluded with words to the following effect:

> The Nanking Government has already decided its policy and attitude with regard to the Lukowkiao Incident. We are aware that conclusive sacrifice alone will be our lot when our country goes to war and that we do not expect the slightest good fortune. In the event of an outbreak of hostilities it is the duty of every part of the country regardless of whether it be the north or the south, and of every man to defend the country.

As may be clearly seen from the above statements, the policies of the Nanking Government and the Chinese Communist Party are fundamentally the same. An article published by the Communist leader, Mao Tse-tung, on July 23, declared that these statements have far-reaching historical significance, giving the impression that he was boasting of the victory of the Chinese Communist Party.

Since then all the policies of the Nanking Government have been subject to the control of the Communist Party, and many Communists and leaders of the popular front, who were imprisoned, have been released and are hailed as the first-line heroes in the anti-Japanese movement. The principal figures among those released are the veteran Communist leader, Chen Tu-hsiu, who was instrumental in the establishment of the Chinese Communist Party, Shen Tiao-ju, Wang Tsao-shih, Li Kung-pu, Sha Chien-li, Chang Nai-chi, Tsou Tao-to and Li Liang of the popular front faction, who are known as the seven heroes of anti-Japanism, Noulens, secretary of the Eastern Bureau of the Comintern and chief of the Chinese Department of the Secretariat of the Pan Pacific Laborers' Union, who had been confined to life imprisonment. It is reported that the warrant for the arrest of Kuo Mo-jo, the well-known Chinese revolutionary scholar, has been cancelled, and he is now taking an active part in the anti-Japanese movement.

On August 21, China concluded a non-aggression pact with Soviet Russia. The Nanking Foreign Ministry, in an official statement issued on August 29, characterized the pact as simply a pledge made between China and Russia not to take any aggressive action against each other or to give assistance to a possible aggressor against either of the parties concerned, and as a condemnation outlawing resort to war as a means of settling international disputes. Lauding its conclusion, the statement added that, by virtue of its simple nature and noble ideals, the accord would not fail to become an important instrument subsidiary to the treaties concluded in the past for promotion of world peace.

However, any one who understands the real state of affairs in the Far East, can readily perceive the unreasonableness and irresponsibility of the Chinese explanation inasmuch as at a time when Japan announced at home and abroad that the fundamental motive which had prompted her to open hostilities against China was to prevent the Communists from controlling that country, the conclusion of such a treaty of amity with Red Russia and the wide opening of China to Communist influence can be construed as none other than a blunt challenge to Japan. If the spirit of other peace treaties really aims at the attainment of peace, China's contention that the Soviet-Chinese Non-Aggression Pact, which has produced no material results other than making a clash between Japan and China inevitable, will become an important instrument subsidiary to the treaties concluded in the past for promotion of world peace, amounts to nothing but a meaningless theory. The despatch sent out by *Kokutsu* (Manchoukuo News Agency) on September 24, 1937, from Shanghai that Nanking and Moscow had drafted the following mutual assistance pact, together with the non-aggression pact, gives tangible proof of the dubiousness of the above conception :

(1) China and the Soviet Union will establish a joint anti-Japanese secret defence committee, with headquarters in Ulanbator, Outer Mongolia.

(2) Nanking and Moscow will co-operate in every way to attain as fully as possible the following objectives :

(*a*) International trouble will be created in either Europe or the Far East in order to render useless the Japan-Germany Anti-Comintern Agreement.

(*b*) The two countries will strive to scatter as much as possible the Japanese forces, through action on the Soviet-Manchoukuo border, the Manchoukuo-Outer Mongolian border, and the North, Central and South China fronts.

(*c*) The Comintern will work to disturb thought in Japan.

(*d*) Guided by the Comintern, secret tactics will be resorted to undermine the Japanese military operations.

(*e*) To attain these objectives, the Soviets will take charge of operations in North China and along the Manchoukuo borders. Central and South China, with Shanghai as the center, will be under Chinese control.

(3) The Soviet Union will supply China with volunteer soldiers and technical advisers, as well as arms and ammunition in case of need. This will be done on the following lines :

(*a*) China will deposit half of what its owes the Soviet Union in the State Bank of the U.S.S.R. to pay for the arms and ammunition it receives.

(*b*) China will pay fixed sums to the soldiers and technical advisers supplied by the Soviets. The Soviet Union will insure their lives in the "gosstrah" (Soviet State Insurance Bureau).

(*c*) The first series shipment of munitions will be delivered to the Chinese between the end of September and the first of December. It will be transported via Outer Mongolia and Sinkiang.

(*d*) The first series shipment will consist of 362 airplanes of various types, 100 anti-aircraft guns, 200 pieces of field artillery, 120,000 shells, 150,000 rifles, 60,000,000 rounds of ammunition, 100 tanks, 1,500 anti-aircraft machine-guns, 2,500 motor-cars and cycles, 5,000 horses and 2,000 carts.

(4) In exchange for Soviet assistance, China promises to carry out the following undertakings :

(*a*) The Comintern will be given full freedom of action in China.

(*b*) China will grant to Moscow full freedom of political and economic activity in Outer Mongolia.

(*c*) Nanking gives Moscow the right to build a railway connecting Outer Mongolia, Sinkiang and China Proper. China will later make other concessions in North China.

(*d*) If and when the anti-Japanese movement ends in success, China will drive out, with Soviet assistance, all other foreign political influences now active in China.

With the Comintern having already succeeded in leading the Nanking Government to a decisive clash with Japan, the next thing which may happen is the downfall of the Nanking régime and the establishment of a Sovietized China. So long as China does not awaken to the actual state of affairs in the Far East and continues to pursue her anti-Japanese policy, she will not only be inviting her own destruction but allowing the Comintern parasite to eat into the heart of East Asia. One cannot afford to overlook the network of Communist ties closely binding Moscow and Nanking.

Other than terror and massacre resulting from the militant rule of autocrats, what freedom, what equality, what justice can be found in the regions under Red control ? The twenty years of Communist government in Soviet Russia has produced merely a sordid mechanized society and a huge army, for the creation of which as many as seven million forced laborers were overtaxed even to the point of death. As the sole stabilizing force in the Far East, it is not by mere chance that the Japanese Empire, which has a national structure based on an unbroken rule for 2,600 years, staked its national destiny in a holy war against the advance of Red imperialism for the sake of moral co-operation and progress of the various races in East Asia. It is only Japan that can save China from being engulfed by the onrushing tide of Communism.

Soviet Activity in Siberia

(Continued from page 128)

Nijiniamursk (Nicholaievsk), and Svobodonuy-Ekimuchan lines. If these lines are completed, not only will economic constructions along these lines be greatly accelerated, but the transportation capacity to the Far East of the Soviet Far Eastern Army will be tremendously enhanced.

Building Rushed

"The Soviets undoubtedly are putting their soul and energy into the work. The Habarovsk-Komsomolisk line was completed at the end of 1936, and by 1940 all the lines are to be opened to traffic. Although this cannot be given immediate credence, the Soviets are working at a furious pace, and it seems true that several hundred miles of railways have extended to the Far East recently. Owing to the tensity of the situation plans for constructing a number of branches from the Bam trunk line to the old Siberian line have been supplemented, and there are also plans to run a number of lines to the Outer-Inner Mongolian border to the north and south of Outer Mongolia. Their possible contribution to the strength of the Far Eastern Red Army is still an unknown quantity.

"In regard to air lines, the Soviets have put in order the trunk air routes from Irkutsk to Vladivostok via Habarovsk along the railway and from Nijiniamursk to Kamchatka along the seacoast and the branch routes from these to the Japanese seacoast points, Alexandrovsk in North Saghalien, Yakha, Chita, Ulanuda and Ulanbator. Airdromes, hangars and other facilities have been prepared for military purposes. In the novel by Babrenko, 'The Far East,' the great rôle of airplanes in the Soviet Far Eastern economic construction is vividly portrayed. As is shown in this novel, civil planes and civil air facilities should be considered part of the military air force.

"Finally, in regard to roads, the work to strengthen the Vladivostok-Habarovsk road, the so-called Stalin road, already has been completed and traffic of military trucks on the 500-mile way is now quite heavy. Roads running between the old Siberian line to the various Amur River points and those running behind the torchikas have been perfected, while construction of over 10 automobile roads cutting through Outer Mongolia to the north and south steadily is progressing. The 400-mile road running from the trunk way between Amur and Yakutsk to Polishoy-Neve (east of Luvrovo) and to Nezametony (gold mining center of Yakutsk) has been completed and should by now be complete. The road connecting the Egaeo port and Koruima gold mine, extending 310 miles, was completed in 1935."

Tokyo Prepares for the XIIth Olympiad

ALL Japan to-day is busily engaged in preparations to make the XIIth Olympiad, opening in Tokyo September 21, 1940, and ending October 6, the most successful in history. To ensure success, all the resources of the nation are being mobilized, stadiums are being constructed and reconstructed, elaborate housing plans have been drawn up and numerous committees, composed of prominent Japanese citizens, are expending every effort to show the sport-loving nations of the world that 1940's Olympic Games will be an event long to be remembered.

Tokyo's pride in being selected by the International Olympic Committee for the site of the XIIth Olympiad is reflected in a statement by Prince Iyesato Tokugawa, chairman of the Tokyo Olympic Organizing Committee and member of the International Olympic Committee. Prince Iyesato Tokugawa said:

"It is not only an honor for the Tokyo citizens, but also a matter for sincere felicitations for the Japanese nation, that we have been afforded an opportunity to hold the 12th Olympic Games in 1940 in Tokyo. The year 1940 falls on the 2,600th anniversary of the founding of the Japanese Empire. Since Emperor Jimmu successfully accomplished the great work there has continued an unbroken line of Emperors until to-day, and during all this time Japan has never once suffered from foreign invasion. Japan's national power has constantly developed, and to-day we have not only repleted national defense, but have attained phenomenal strides in all fields of peaceful work, including industrial and cultural activities.

"To honor and glorify the illustrious achievements of our Imperial Ancestor who laid the foundation of such national growth and development we are trying to carry out, in the 2,600th year of the founding of our Empire, various celebration undertakings to commemorate the occasion. The opportunity will of course be used in making known more clearly to the world Japan's culture and civilization, but we, considering the occasion a rare chance, have planned also the holding of the 12th Olympiad in Tokyo. When Japan first conceived the idea, the 12th Olympiad was to be held in Rome, that city already having set about making preparations. Despite this fact, when Japan expressed her strong desire to stage the 1940 Olympics in Tokyo, on the occasion of the 2,600th anniversary of the founding of the Empire, Premier Benito Mussolini decided to concede the honor of holding the international affair to Tokyo, supporting our plan. Thus it has been decided that the Tokyo Olympics should be held. For this step taken by Italy, reflecting her good understanding of the situation involved, we take this opportunity to express our heartfelt thanks.

"While we have been making preparations for the Tokyo Olympics, the China Incident broke out, which gave rise to various rumors both at home and abroad as to the possibility of holding the Games here. But the Tokyo Olympic Organizing Committee has been working strenuously throughout to stage the Games here, and this fact I do not hesitate to aver in my capacity as chairman of the Committee."

First Olympic Competition

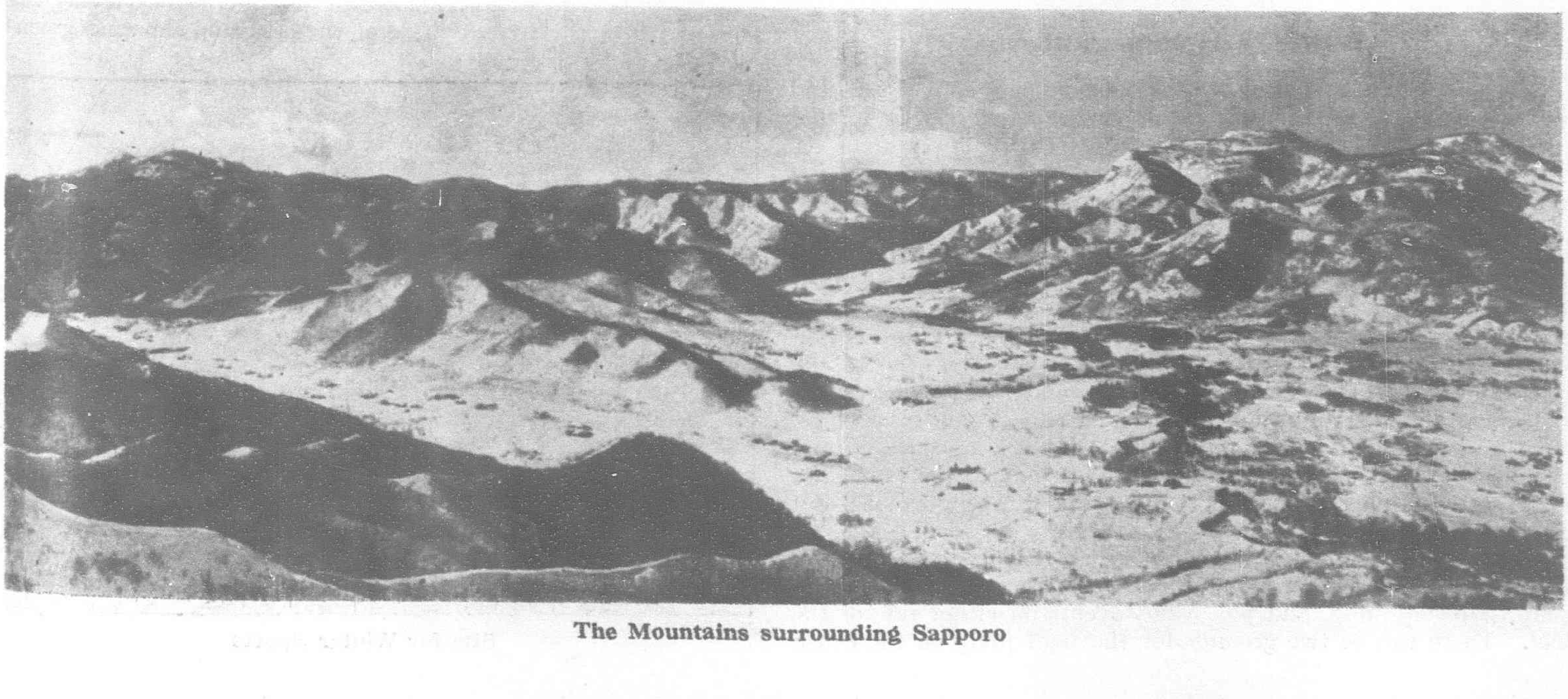
Japan came to take participation in the Olympic Games, for the first time, by virtue of the invitation sent to Mr. Jigoro Kano, then President of Tokyo Higher Normal School (Member of the I.O.C. and Honorary President of Japan Amateur Athletic Association at present), through the French Embassy. At the I.O.C. Congress held in Berlin in 1909 he was elected as a member of I.O.C., first from Japan. In 1911 Mr. Kano and others organized the Japan Amateur Athletic Association, and he took the post of president. On October 18 and 19 an athletic preliminary meet was held at Haneda Ground, temporarily made in the vicinity of Tokyo, and two champions were selected who were to be sent to the 5th Olympic Games in which Japan took part only by athletic sports.

The most memorable first delegation was as follows:

Officials: Jigoro Kano and Hyozo Omori.
Champions: Yahiko Mishima and Shizo Kanaguri.

These two champions started via Siberia in May, 1912. The Fifth Olympic Games, held in Stockholm from July 5 to 14, 1912, were represented by 27 nations, and at the opening ceremony the Japanese delegation entered the stadium next to the Italians; Kanaguri holding up the board signed Japan and Mishima holding the flag of the Rising Sun, followed by Kano, Omori and two members of the Japanese Legation Staff there. In 1920 the VIIth Olympic Games were held in behalf of world peace and human health in Antwerp, Belgium, where the whole nation had been spending their utmost energies for the reconstruction of their land, severely damaged by the Great War. Our delegation consisted of three officials and fifteen champions.

Despite the terrible devastation by the earthquake which took place in the Kanto District in the preceding year, the Japan Amateur Athletic Association decided to take part in the VIIIth Olympiad held in 1924. It was intended by this participation to prove that the spirits of Japanese youth had not been utterly depressed by this emergency, to challenge nations advanced in sports with the fruit of four years' striving, to see the good in others for their future improvement and to co-operate with other Powers for the fulfilment of the mission of Olympiad. The sporting circles in Japan were greatly encouraged by the subsidy



The Mountains surrounding Sapporo

given by the Government in succession to the one given by the Government for the expenses of sending champions to the 5th Far Eastern Championship Games held in 1921. Other stimuli came from the affiliation of the Japan Amateur Athletic Federation and Japan Amateur Aquatic Federation to the International Federations respectively and the nomination of another Japanese to the I.O.C., namely of Dr. Seiichi Kishi, who had taken the post of President of the Japan Amateur Athletic Association from 1921. The delegation consisted of nine officials, nineteen champions and three observers.

Japan's 1928 Victories

It was in 1928 that the rising Japanese sportsmen favorably competed with the world's champions of established fame, and it is still fresh in Japan's memory that entries for the 9th Olympiad were praised for two world championships they won. Our delegation consisted of 13 officials and 43 champions.

Meiji Shrine Athletic Gounds

The Xth Olympiad was held in Los Angeles from July 30 to August 14, and Nippon's big delegation sent there consisted of 59 officials and 129 champions. In track events Yoshioka and Abu entered for the 100 metre dash, and although Abu was put out of the second preliminary Yoshioka was placed sixth in the final. This was the first time that a Japanese athlete won a short distance race, and especially his start dash was esteemed as the best in the world. In the 200 meters Yoshioka, Nakajima and Nishi were all put out. In the 400 meters Masuda and Cho failed in the first preliminary, and Aki failed in the second preliminary.

In the XIth Olympiad held at Berlin in 1936 Japan sent a large delegation, which carried off many honors. The Japanese athletes participating in the games numbered 250 persons. The most meritorious contributions to Japanese sporting circles were rendered by such athletes as Tajima, who made a new world record in the pole-jump, as in the case at Los Angeles, and made Japan the holder of the world championship three times continuously; Son, who won first place in the Marathon race; Nan, who was placed third in the Marathon race; Murakoso, who was placed fourth, his effort in the long distance drawing world admiration; and Nishida and Oye, who beat two of America's formidable teams.

1940's Vast Preparations

With the experience of the past Olympiads behind her, and the growing skill of her athletes, Japan hopes to garner further honors in the 1940 games. There are few who doubt that the Japanese will dominate the Olympiad in many fields. Here are the preparations for the 1940 competition.

The site of the main stadium and swimming stadium will be in the garden of the Meiji Shrine, in the heart of Tokyo, its area being 125 acres. All scientific and modern devices will be installed to insure accuracy of judging the contests and for the comfort of the contestants as well as of the spectators. Every precaution will be taken to permit a good view of the contests, even to the spectators at distant points in the grand stands. The chief events to be held at the stadium are the opening and closing ceremonies, track and field events, different games, equestrian contests, etc. The stadium field will be laid out with the track to the center, its outer portion being devoted to running and throwing events, and the inside to different games.

The track is 400 meters in length, with a straightaway of 140 m. on the side of the main stand. There will be places for broad jump, hop-step-jump, and pole vault events on either side of the field. There will be two grounds for the high jump on the south side of the field. Supplementary grounds for running events will be laid at the north side of the field. The ground for the javelin throw will be laid out at the south side of the field. The grounds for other throwing contests will be laid at both north and south sides of the field. Two entrances by underground passage will be provided at the south end of the field for the exclusive use of the contestants.

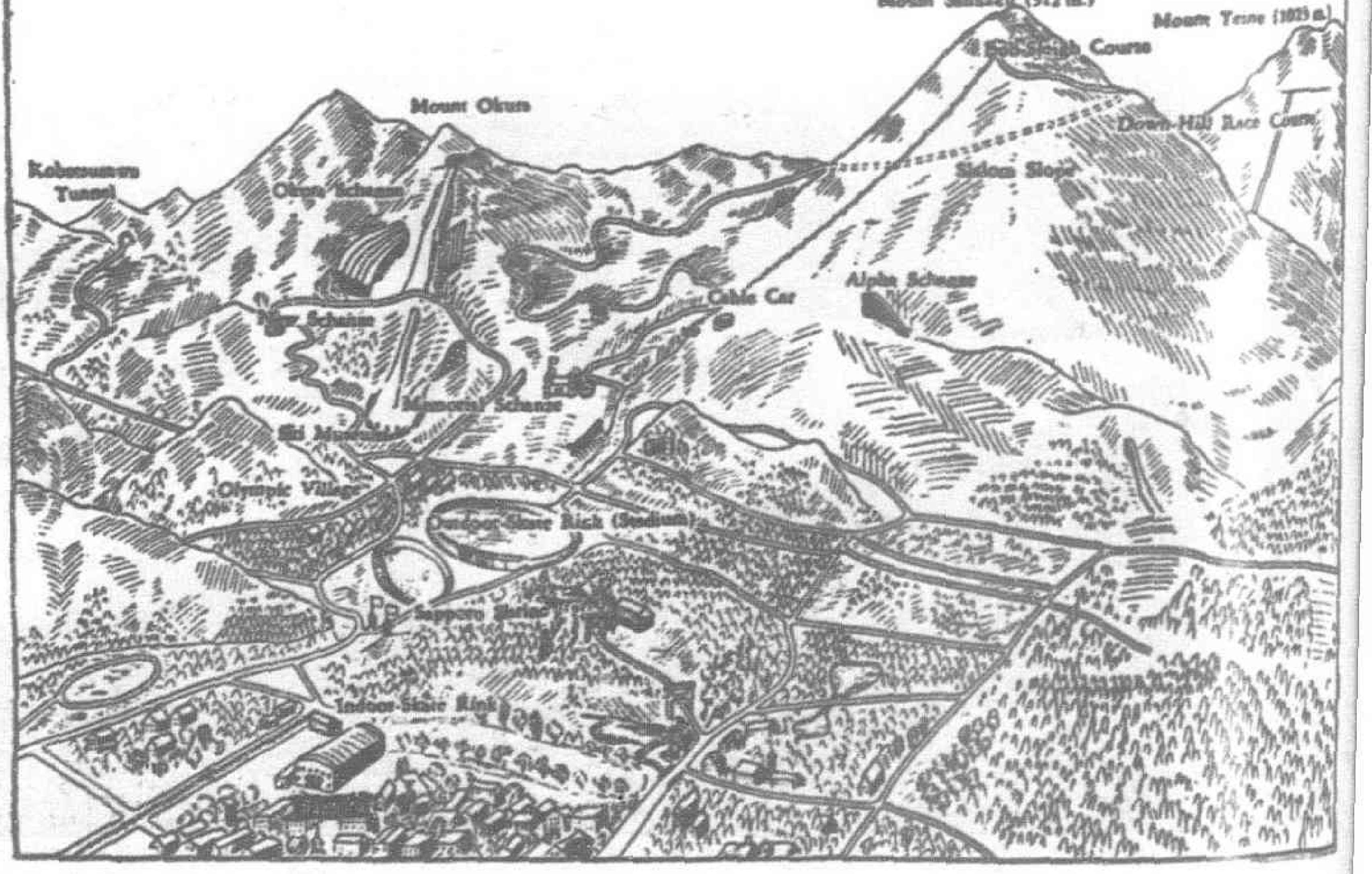
Swimming Pool will be Large

The new pool, 50 by 22.3 meters, will be constructed near the Main Stadium. There will be 9 courses, each 2.3 m. wide, 1.3 m. deep at both ends, and 2.2 m. at the mid-point. The diving-pool, 20 by 20 m., will be 5 m. from the swimming pool; depth 4.5 m.; and height of the diving-stands is 5 and 10 meters; also 2 other diving-stands at 2 m. and 1 m. respectively. Water polo will be played at the center of the swimming pool, 20 by 20 m. Temperature of the water will be maintained between 20°-23° C. The stadium will have a capacity of 20,000 and will be well illuminated for evening contests. The grounds for the ball games will be laid out at Shiba Park, and several others as required. These will be used also for preliminary contests. The courts and links for indoor sport will be constructed at the Meiji Shrine Ground and at Surugadai, about 4 kil. from the Main Stadium. The field for equestrian events will be laid in Setagaya, about 10 kil. from the Main Stadium.

Rowing Course at Toda-mura

A new course, 2,500 by 80 m. and 3 m. deep, will be dug at Toda-mura, in Saitama Prefecture, the suburban district of Tokyo, and about twelve miles away from the center of Tokyo. The course will run east and west, and will not be subject to tidal changes; four boats can participate in a race. All the rowing events and canoe contests will be held over this course. A proposed yacht course for the Olympic monotype events will be at Yokohama, to be 2,000 m. in diameter. In case of rough weather inside, the harbor breaker will be used as the course for the star class events, and six and eight-meter classes will be between Tokyo Bay and Kanagawa prefecture.

The shooting grounds, 50 m. by 60 m., will be located in the city for all the shooting events except the American-style clay target shooting, which will take place at the Tsurumi shooting grounds.



Site for Winter Sports

POINTS OF INTEREST FOR OLYMPIAD VISITORS

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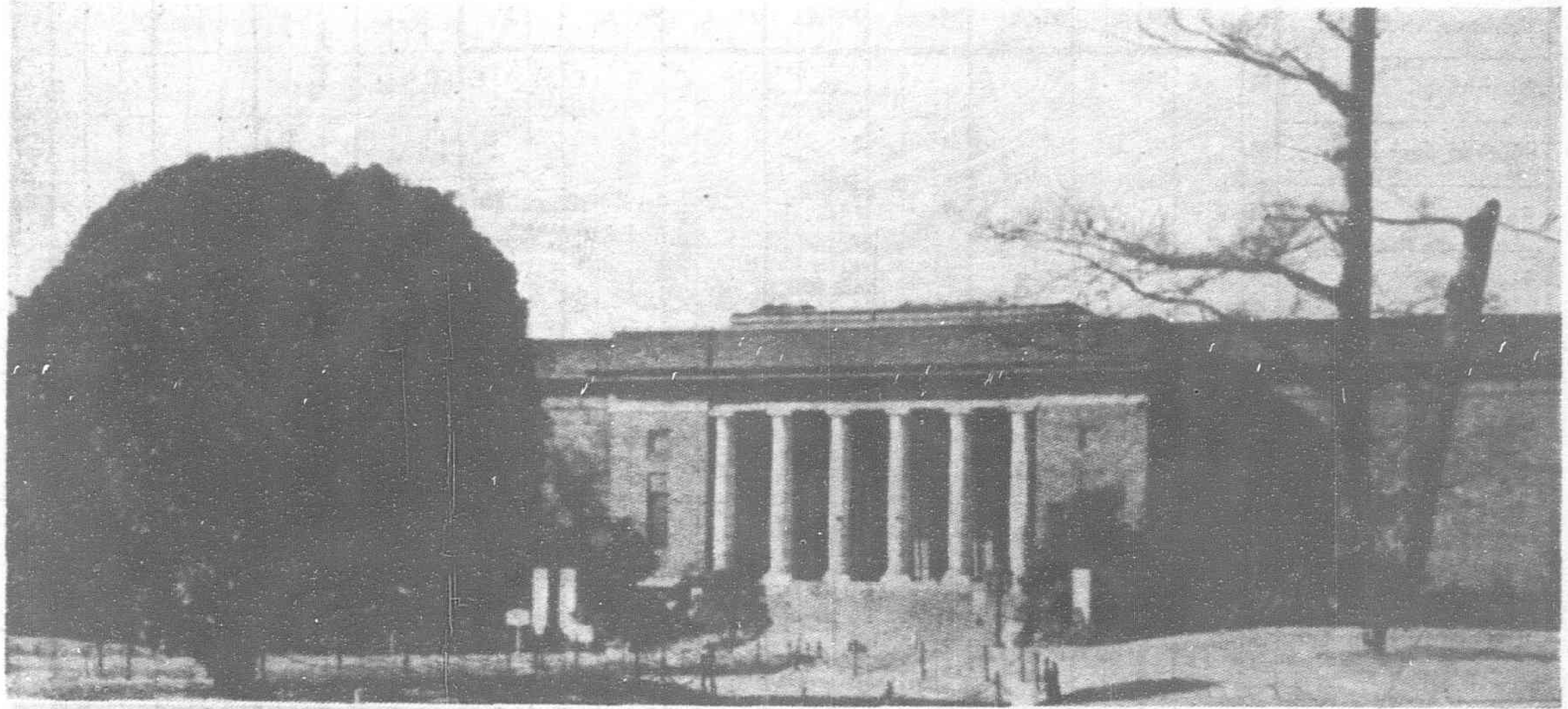

TOKYO ART GALLERY

The location for the XIIth Olympiad's Fine Art Exhibition

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KOKUGIKAN AMPHITHEATRE

During the Olympic Games, wrestling, weight-lifting and boxing competitions will be held here

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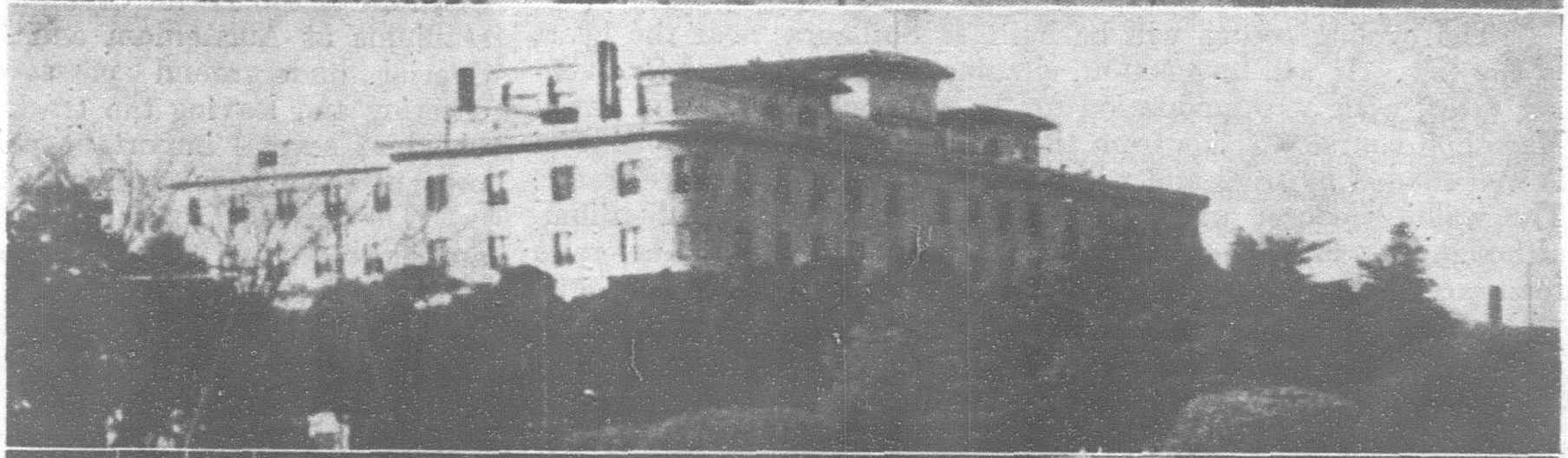

NEW GRAND HOTEL, YOKOHAMA

Ample housing facilities will be available for foreign guests throughout Japan

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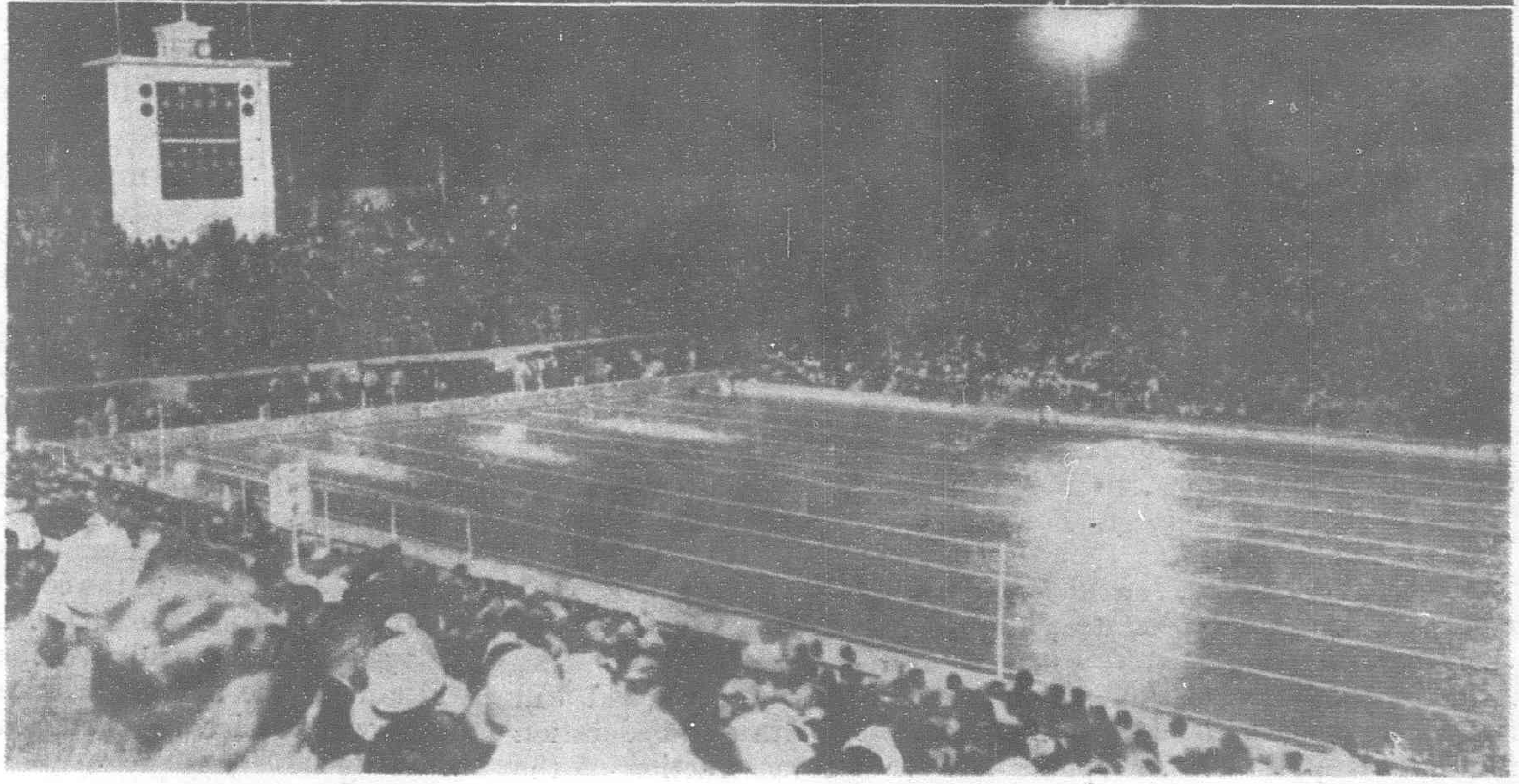


WATER STADIUM

Here is pictured the Japan-America swimming meet at Koshien, between Osaka and Kobe

●

Date: SEPTEMBER OCTOBER	22	23	24	25	26	27	28	29	30	1	2	3	4	5	6	Competition Ground
Day: M=morning A=afternoon E=evening	Sun.	Mon.	Tues.	Wed.	Thu.	Fri.	Sat.	Sun.	Mon.	Tues.	Wed.	Thu.	Fri.	Sat.	Sun.	
Athletics	M A	M A	M A	M A	M A	M A	M A	A								Olympic Stadium
Wrestling	M E	M E	M E			M E	M E	M E	M E							Kokugi-kan Amphitheatre
Modern Pentathlon	M	M A	M	M	M											Ochanomizu Courts, Swimming Stadium, Murayama etc.
Fencing	M E	E	M E	M E	M E	M E	M E	M E	M E	M E	M E	M E				Kokumin Taiiku-Kan (Education Gymnasium) & Ochanomizu Courts
Hockey	M A	A	M A	A	M A	A		A	A							Shiba Park Stadium
Canoeing	M A	A														Toda Rowing Course & Arakawa Course
Football		M A	M A	M A	M A	M A	M A		A	A		A		A		Olympic Stadium & other grounds
Gymnastics		M A	M A													Kishi Memorial Gymnasium
Yachting			M A	M A	M A	M A	M A	M A	M A							Tokyo Bay
Weight-lifting				E	A E											Kokugi-kan Amphitheatre
Shooting					M A	M A										Murayama Shooting Ranges
Basketball					A E	A E	A E	A E	A E	A E	A E	A E	A E	A E		Kishi Memorial Gymnasium & Jingu Court
Swimming							M A	M A	M A	M A	M A	M A	M A	M A		Olympic Swimming Stadium
Handball								M A	M A	M A	M A		M A			Olympic Stadium & other grounds
Boxing										A E	A E	A E	E	E		Kokugi-kan Amphitheatre
Rowing										A	A	A	A			Toda Rowing Course
Cycling										E	E		M			Cycling Stadium & Nakasendo Road Course
Equestrian Sports										M A	M	M A	M	A	A	Equestrian Stadium & Olympic Stadium

Note :—Those printed in ☐ will be performed in the Olympic Stadium.

(Subject to Changes)

Program of the XIIth Olympiad, Tokyo, 1940

Cycling Course

The cycling course will be built at Shibaura, near the heart of the city. It will be a 500-m. circular course, equipped for evening races, with accommodation for 10,000 spectators. The paved Marathon course extends from the Main Stadium to Koganei, and is well shaded by trees and will not be disturbed by surface traffic. The walking course will probably be around the Main Stadium, although the final decision has not yet been made. The cycle road racecourse, or another extending from Toda-mura to Kumagai, with drinking-stations and repair-shops along the roadsides, may be chosen. The 10,000-m. long canoe course of the Arakawa Canal, running from south-east to north-west and 60-m. at the narrowest point, will be arranged.

Equestrian Cross-country Test Course

It is expected that this will be laid at the western part of the city not far from the present riding track.

Fine Arts Exhibitions

The Uyeno Fine Arts Museum will be devoted to the arts, and the Hibiya Park Conservatory for musical performances.

Facilities available other than those provided at the Olympic Village will be 20 fields for Track and Field Events, 10 Swimming-pools, 13 Football Grounds, 8 Hockey Grounds, 10 Basketball Courts, 10 Gymnasiums, 10 Boxing Rings, 10 places for Fencing, 10 places for Weight-lifting. For other sports regular facilities will be made available.

Construction plans for the Main Stadium of the XIIth Olympic Games, Tokyo, have been drawn up by the Sports Department of the Organizing Committee, with the co-operation of the Amateur Athletic Federation of Japan, members of the I.A.A.F., and will shortly be sent to the International Amateur Athletic Federation for official approval. The plans call for a reconstruction of the existing Meiji Shrine Stadium. In drawing up the plant the Main Stadium of the Berlin Olympic Games was taken as a model, and stadiums at Amsterdam and Los Angeles were also referred to. Special underground passages are provided for participants entering and leaving the track and field grounds. Pits are provided at several important points for photographers in order to prevent them from getting in the way of athletes and spectators.

The foremost part of the Main Stand and the jumping field are separated by 6 meters, the maxmium distance obtainable on the site allotted for the stadium in the outer garden of Meiji Shrine, to ease the congestion expected at the opening ceremony and for the smooth running of the programme. On the opposite side of the track 4 meters separate the stand and the second jumping field in order to relieve the mental strain of the jumpers during the elimination trials. C. Hunter, coach, and W. Sefton, captain of the U.S. Track and Field Team which visited Japan last summer, expressed their satisfaction with these plans.

Olympic Village at Tokyo

The Tokyo Organizing Committee will follow its predecessors at Los Angeles and Berlin in building an Olympic Village, as close contacts among the sportsmen of the world proved to be of such great help in promoting international understanding. The plans of the Olympic Village take into consideration giving foreign sportsmen an impression of the life in Japan. A place as close to the stadium as possible will be selected, and transportation from the village to the various sporting grounds will be provided. Wooden houses in a semi-Japanese style with western comforts will be developed for each four inhabitants. Special dining-halls and bath-houses will add to the comfort of the athletes and their trainers. For the first time the I.O.C. intends to build a special Olympic Village for the women participants near to the one for men. This will add to the new contributions of the XIIth Olympic, as the ladies will receive the same careful consideration in their village as the men.

It will be easy for trainers and officials of the various teams to carry out their duties in connection with the women participants, who will thus be living quite near their own Olympic Village. Yachtsmen will live in Yokohama close to their regatta course, where special hotel accommodation will be provided.

With the present steamship and railway transportation facilities a maximum of about 10,000 foreigners monthly can be brought to Japan. For this number of foreign guests ample housing facilities are available in Tokyo and Yokohama (30 minutes by electric express train). A special housing committee in the host city of Tokyo is preparing housing plans to accommodate these and any additional influx of visitors. Hotel prices will not be increased for the time of the Games. At present a hotel room can be obtained from Y.3 up. The housing committee is at work on the following lines:

(a) Special hotel accommodation for I.O.C. and N.O.C. members and officials of the Games, including official press representatives.

(b) Hotel accommodation in Tokyo and Yokohama (western style).

(c) Hotel accommodation in Tokyo and Yokohama (Japanese style).

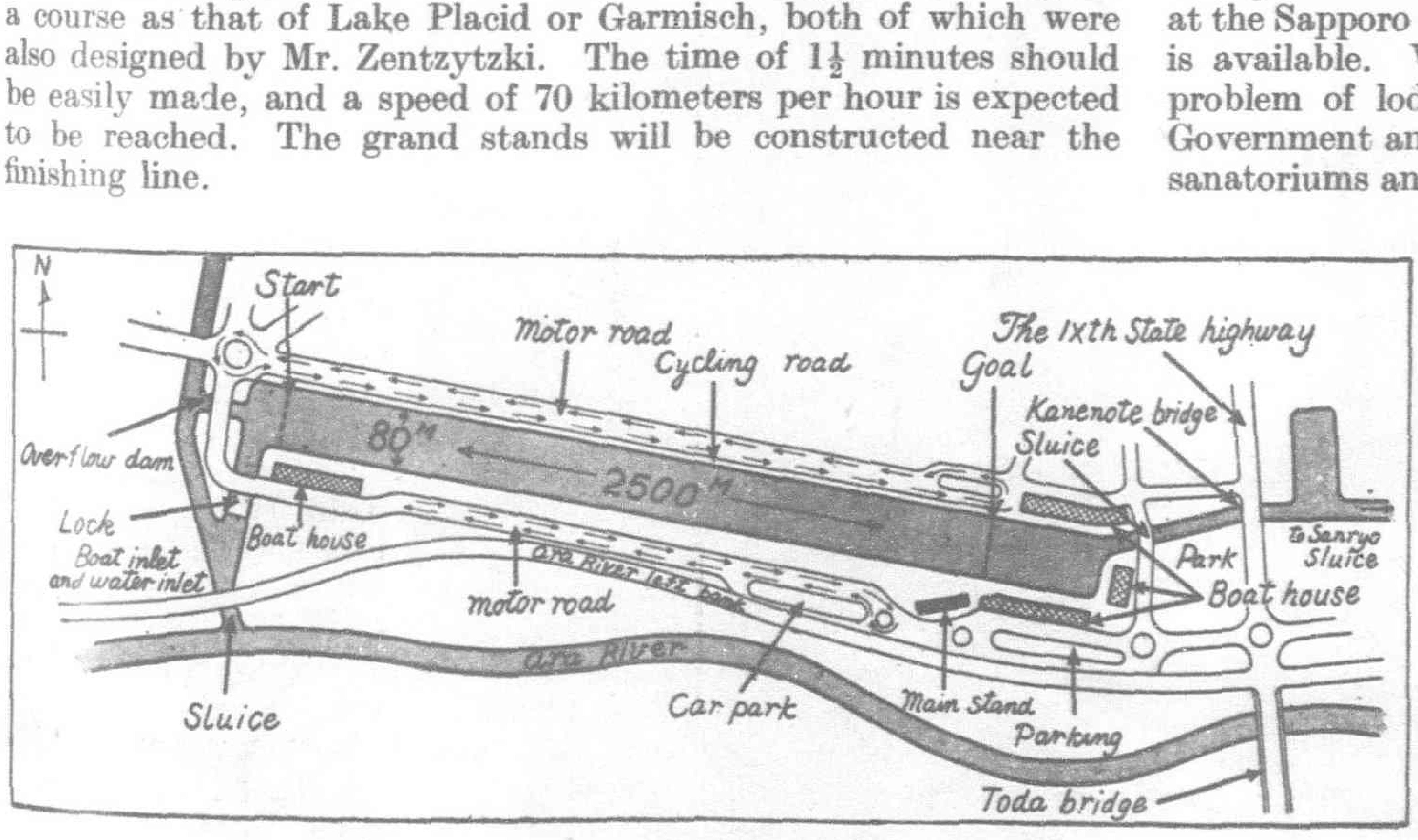
(d) Accommodation in private homes of Japanese and foreign residents in Tokyo and Yokohama, boarding houses, apartments, clubs and others.

Winter Sports Olympiad

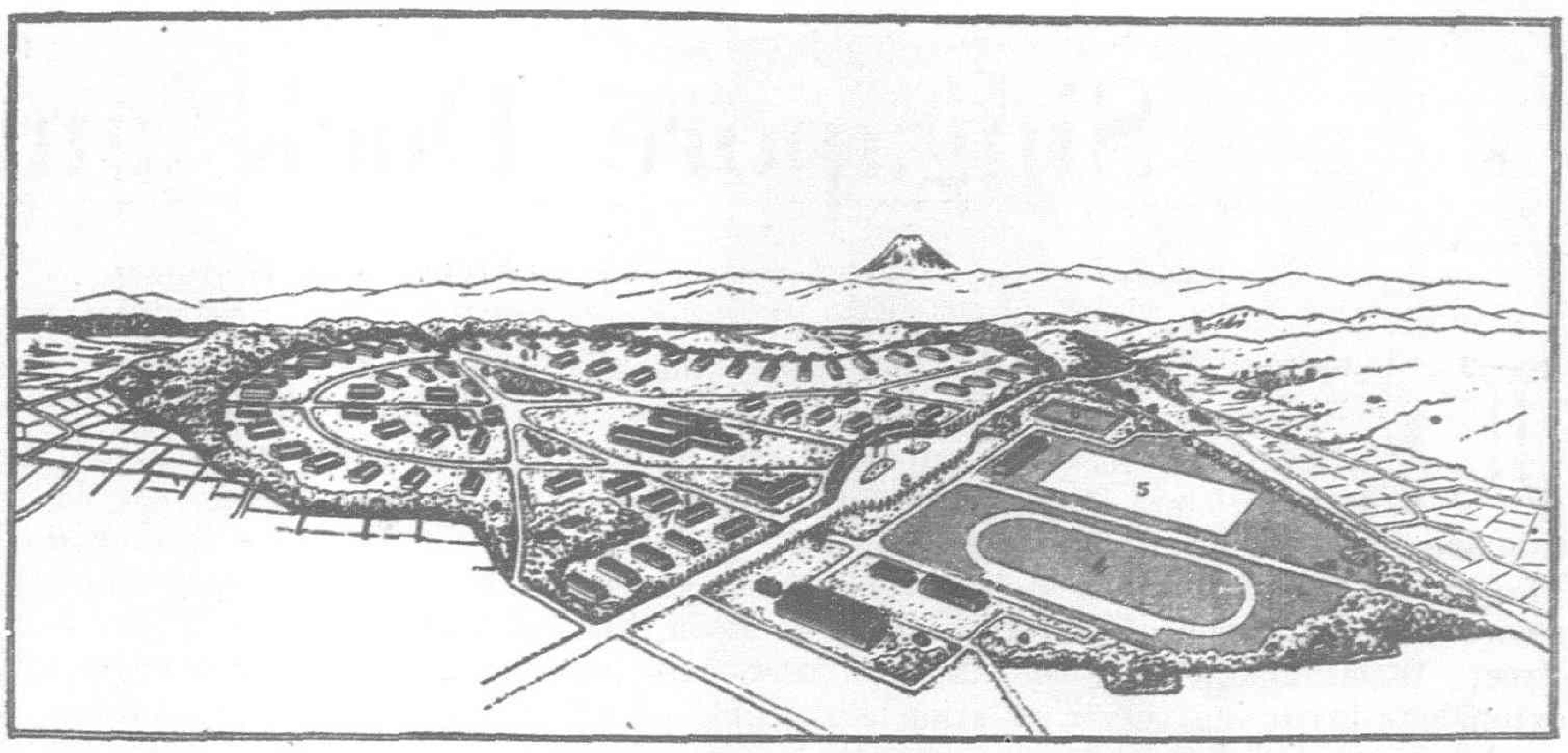
The 5th Winter Sports Olympiad will be held at Sapporo. The events consist of speed skating (150 meters, 5,000 m. 10,000 m.), figure skating (women and men in pairs), ice hockey, bob sledding (in fours and twos). Previously planned ski events have been excluded from the program. However, invitational events other than the Olympic matches are the proposed plans.

The Indoor Skating Rink will be situated in the Nakajima Park, with a seating capacity of 4,000. The Outdoor Skating Rink will be located on the side of the baseball grounds to the south of the Indoor Skating Rink. The circumference of the rink will be 400 meters, and stands for an approximate seating capacity of 14,000 are being planned.

The Bob Sleigh Course, designed by M. M. Zentzkytzki, is situated around Mt. Jinja, north of the Sapporo Stadium. The starting-point is at an altitude of 210 meters and the finishing-line at the 60-meter point. The entire length of the course is 1,718.60 meters, the average inclination being 9 per cent. The small and large "S" curves throughout the course will make it one of the finest Bob Sleigh Courses in the world. It is hoped to be as good a course as that of Lake Placid or Garmisch, both of which were also designed by Mr. Zentzytzki. The time of 1½ minutes should be easily made, and a speed of 70 kilometers per hour is expected to be reached. The grand stands will be constructed near the finishing line.



Toda Rowing Course



Countryside of Olympic Village. 1. Main Office. 2. Dining-room. 3. Gymnasium. 4. Track and Field. 5. Football Field. 6. Pool. 7. Cottages. 8. Tunnel. 9. Parking Space.

Sapporo having been selected as the site for the Vth Olympic Winter Games, the organizers in Japan have begun to exert strenuous efforts in preparation for it, with the hope that it will surpass the games held in Chamonix, St. Moritz, and Lake Placid, and will at least equal the games at Garmisch-Partenkirchen.

As in the case of the Tokyo Olympics, an organizing committee will be established for the Sapporo Olympics. This committee is expected to make preparations along the lines described below:

Skating Contests

Indoor Rink: This will be newly constructed in the municipal ground at the Maruyama Park terminus of the street railway line. The rink will measure 25 by 60 meters, and stands will accommodate 8,000. Figure-skating and ice-hockey matches will be held in Tokyo.

Outdoor Contests: The municipal athletic ground in the outer compound of the SapporoShrine will be turned into a skating ground, with a circular course 13 meters wide and well over 400 meters in circumference. Speed-skating contests will be held here, and the area circumscribed by the course will be used for ice-hockey matches. Plans are under consideration to invite foreign experts, perhaps from Germany, to visit Japan to supervise the necessary construction work for the course for these races and also to train Japanese athletes in the art of bob-sleighing. At present it is expected that the course will have its start on Mt. Sankakuyama and extend to Maruyama Park, covering a distance of about two kilometers.

Lodging

A special village to house contestants has never been built for any of the Winter Olympic Games. But conditions are different in Sapporo, for Japanese inns and private residences can hardly be regarded as offering accommodation suitable to visitors, although at the Sapporo Grand Hotel excellent western-style accommodation is available. Various plans are thus being studied to solve the problem of lodging. One solution is to approach the Hokkaido Government and other public authorities who are planning to build sanatoriums and the like, and to have these built in time to be used as lodging-places during the Olympic Games.

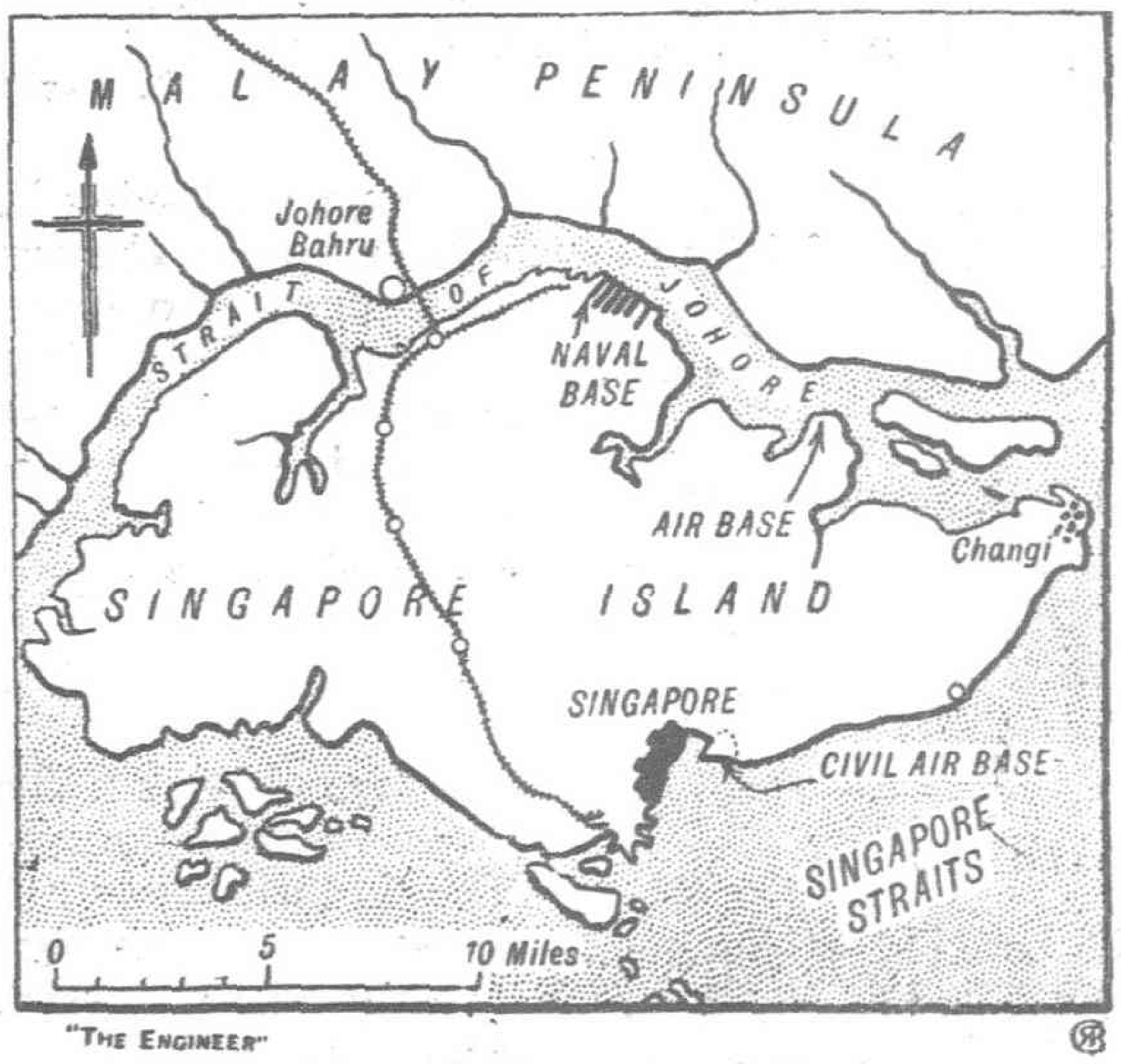
Sapporo is a modern city with wide and elegant boulevards; it is the seat of government and the center of commerce in Hokkaido, a northern island in the Japanese archipelago. The latitudinal position of this city corresponds to that of Rome, Italy, or Chicago. To the north-east of Sapporo lies the plain of Ishikari, and in the opposite direction are the Maruyama and Moiwa mountains. The Olympic Winter Games will be held in the neighborhood of this city, where fine and powdery snow covers the whole landscape in winter and where the temperature falls well below zero, but never to a point that may be called severe. The countryside is covered with acerose trees, and is easily

(Continued on page 157)

Singapore Dock and Harbor

(From "The Engineer")

In February of this year there was officially opened at the Singapore naval base the large new graving dock designed to be capable of docking any ship in the present British fleet and large enough to take ships of the greater tonnages now under discussion which may be built in the future. The contract for this work and other works at the naval base was awarded in September, 1928, to Sir John Jackson, Ltd., of Victoria-street, Westminster, and that firm is now carrying out further extensions involving the excavation and filling of 1,250,000 cubic yards of material, heavy drainage works, and the construction of magazines.

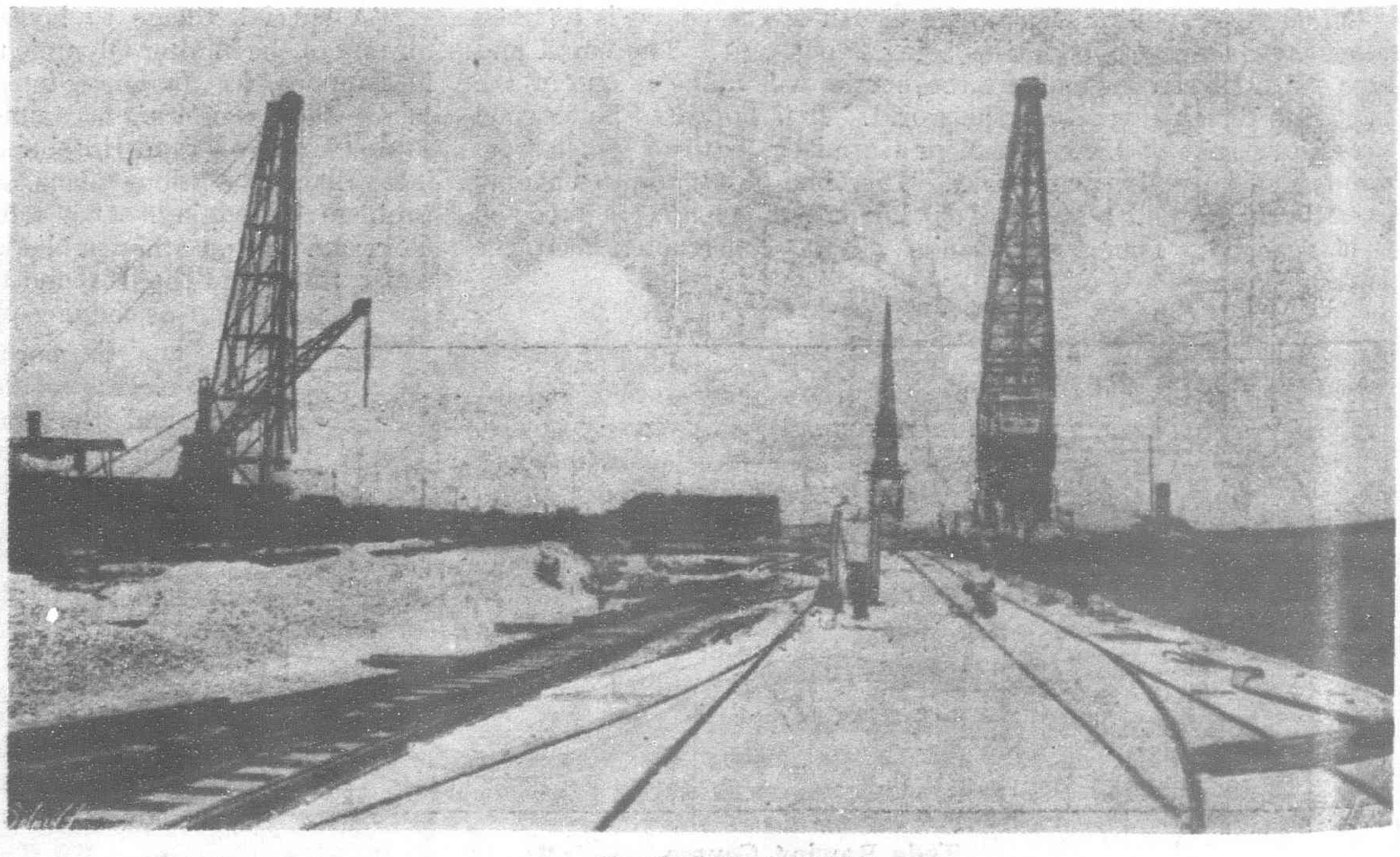


Map of Singapore Island

The chief work is the new graving dock, but unfortunately the amount of information available about it is limited by the need for secrecy. It has a length of 1,000-ft., an entrance width of 130-ft., and a depth over the sill of 35-ft. It was constructed entirely in open cut, a method which not only proved entirely successful, but also showed a considerable saving in cost as compared with the more usual open cut and trench procedure. To take out the necessary excavation, 1,400-ft. long by 550-ft. wide and 85ft. deep, a large electric dragline excavator weighing 310 tons was used. The dock walls are made of concrete and are about 27-ft. thick, while the floor, which is constructed in the form of voussoir, is 30-ft. thick. All the concrete, which was mostly of 8 : 1 mixture, and other materials were handled into place by four 5-ton travelling cableways of 900-ft. span, and each cableway was fed by a two cubic yard concrete mixer. The entrance caisson for the dock was constructed by Sir William Arrol & Co., Ltd., and the pumping machinery was supplied by Gwynnes Pumps, Ltd.

Besides the graving dock, a number of other works have been completed by the contractors. The length of mass concrete wharf walls amounts to 6,000 linear feet. These walls have an average height of about 70-ft. and a thickness of 35-ft., and they were built in open cut and trench, both on an average 35-ft. deep. The concrete was placed by the use of travelling cableways from two cubic yard mixers. Two temporary dams were required for their construction. One was a plain earth embankment, 2,600-ft. long. But the other was a cellular dam of steel sheet piling, consisting of twenty-eight cells, 35-ft. by 28-ft., for a total length of 1,000-ft. The cells were filled with earth and were required to withstand a maximum head of 35-ft. of water. Eighteen million gallons of water was pumped out of the area enclosed by this cofferdam.

In addition to the works already mentioned, the amount of labor necessary to obtain a level area for the dockyard was considerable. Four large electric and five steam excavators were employed on this work, and the material removed was used for the reclamation of swamp areas. In connection with the erection of dockside sheds, transit sheds, workshops, generating station, etc., more than 2,000 reinforced concrete piles were driven. Many roads and drains have been constructed, and six miles of permanent railway track have been laid. In the Johore Straits a steel and concrete jetty, 600-ft. long by 40-ft. wide, has been built. It is carried on 150 octagonal reinforced concrete piles, 18in. section, some of which are 100-ft. long.



North Wharf Wall

For the considerable amount of dredging necessary the contractors took over the Admiralty dredger "Foremost," and the material was conveyed 12 miles away to dumping ground at Changi in three 1,000-yard hopper barges and two dumb hoppers. The approach to the graving dock has been dredged to provide a depth of 40-ft. at low tide, while the corresponding depth at the wharf walls is 30-ft. Besides 5,000,000 tons of earth dredged away, 60,000 yards of rock needed to be drilled and blasted.

Works of the character described are not carried out without careful preparation. Much of the site of five square miles in 1928 was covered either by jungle or rubber plantations, and the ground had first to be cleared and temporary roads and railways to be constructed. Accommodation was ultimately provided for 5,000 coolies and 100 Europeans, workshops and stores were erected, and a 2,800-kw. electric generating station was brought into service. For the handling of materials arriving by sea a temporary wharf, capable of accommodating vessels up to 7,000 tons, was constructed. Some idea of the scale of the works is given by the following quantities:—Excavation, 10,500,000 cubic yards; concrete, 900,000 cubic yards; dredging, 5,250,000 cubic yards; reinforced concrete piling, 180,000 linear feet; and cement, 140,000 tons.

To obtain concrete-making materials a granite quarry was opened in Johore, opposite the naval base, and about 3½ miles inland from the Johore Straits. The stone from the quarry was brought down to the coast by a railway specially constructed for the

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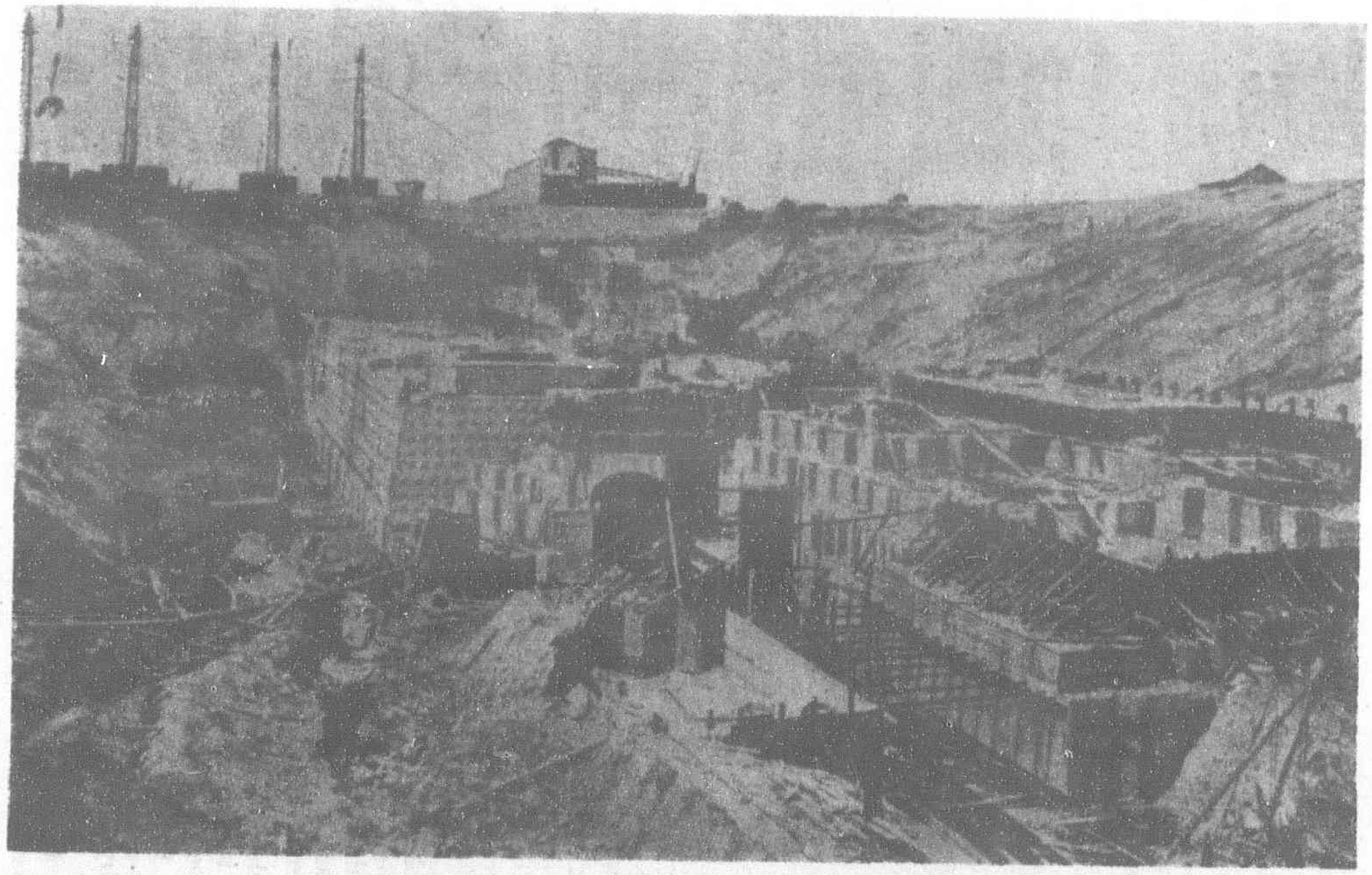
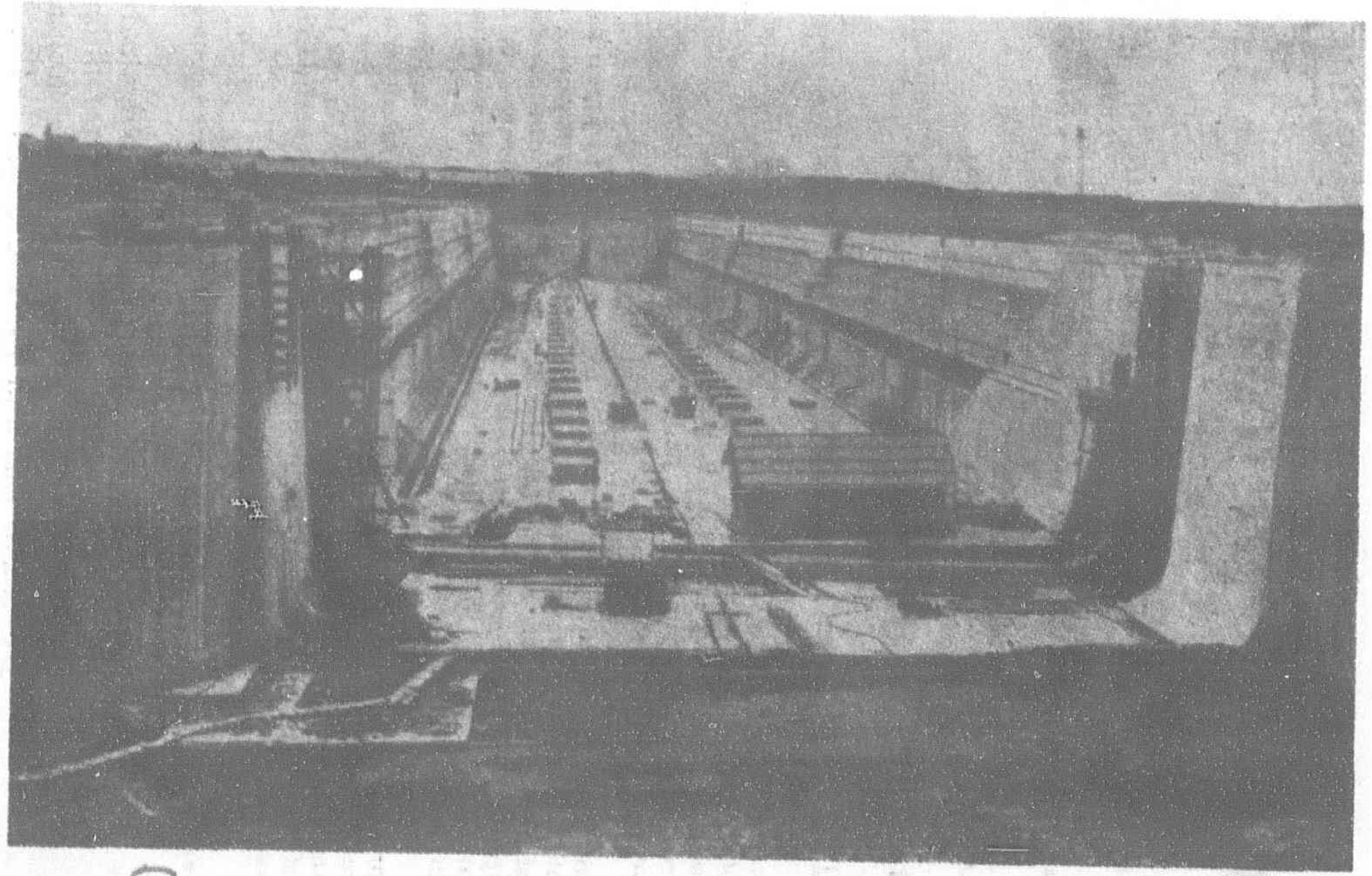
NAVAL BASE AND GRAVING DOCK AT SINGAPORE



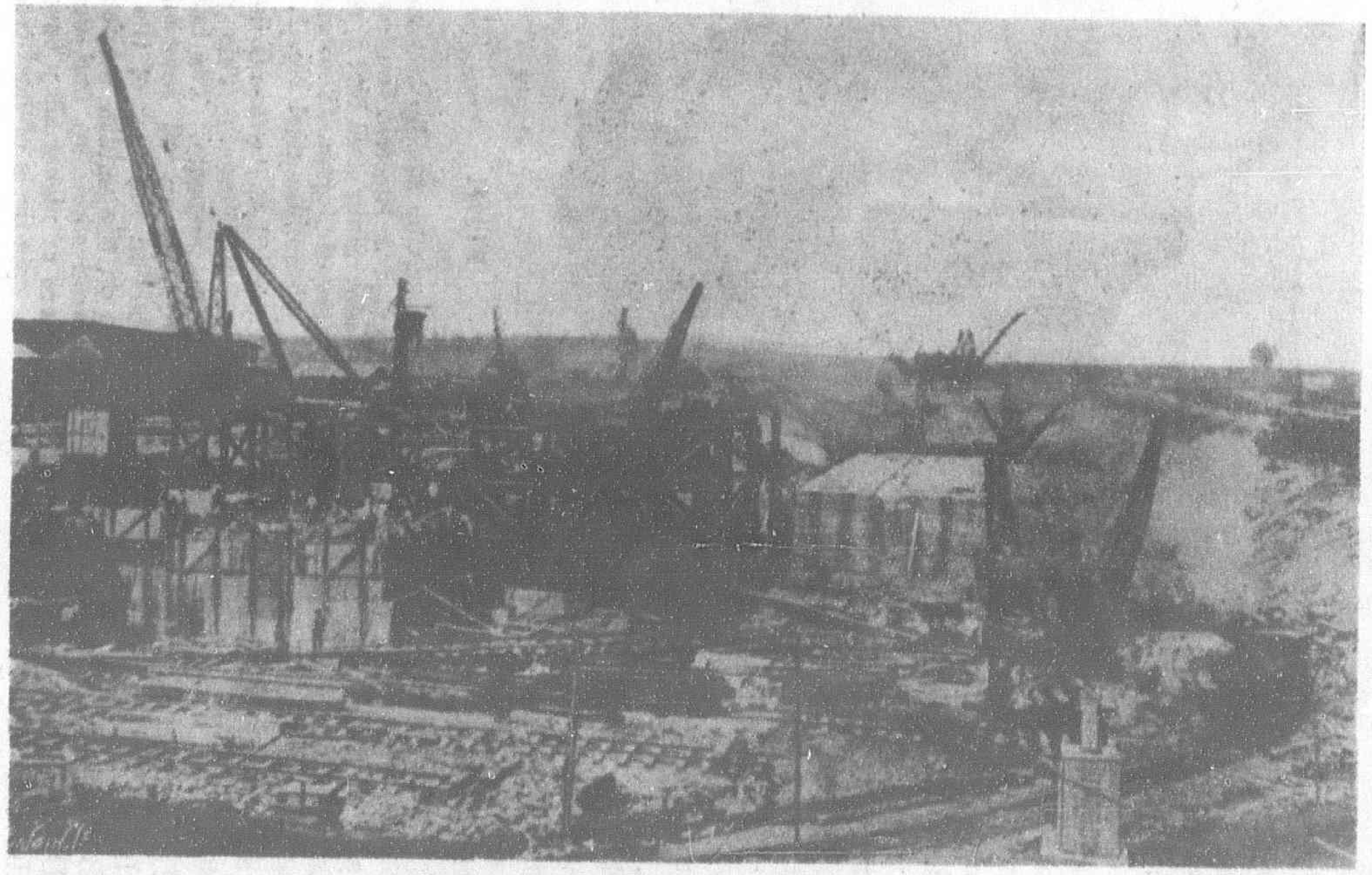
1

Construction of Entrance to Dock



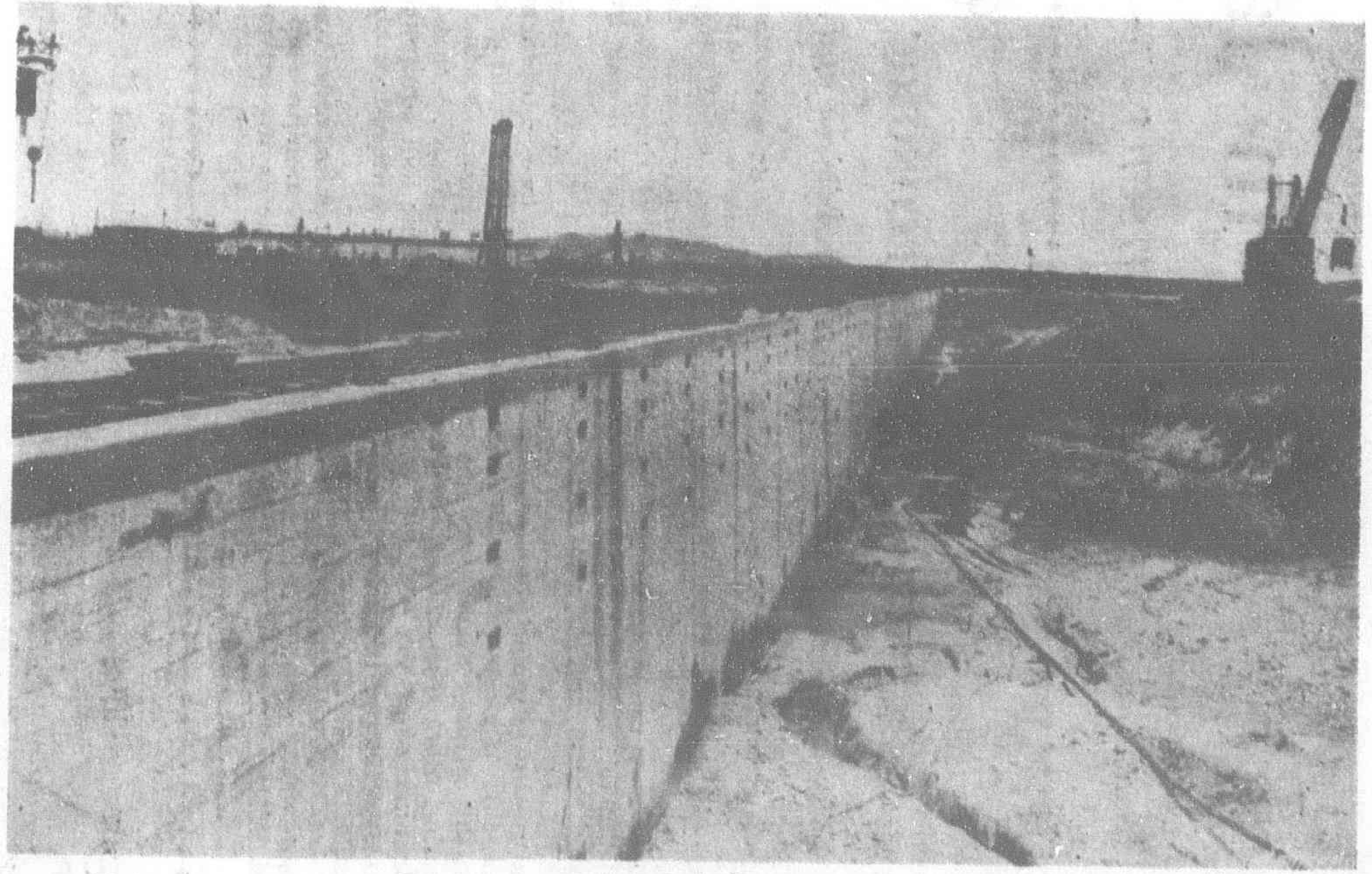
2

Graving Dock nearing completion



3

Construction of Dockyard Wharf Walls



4

Stores Wharf Wall

Nickel Alloys in Japanese Machine Tools

By Rear-Admiral TAKETARO MATSUDA, Vice-President of the Society of Mechanical Engineers of Japan

FOREWORD:

THE NATIONAL ECONOMIC IMPORTANCE OF MACHINE TOOLS

By JAMES A. RABBITT, Adviser and Acting Director, Japan Nickel Information Bureau

It is well known that machine tools are of vital importance in the production of machinery which is necessary to the industrial development of the nation, but there is another economic phase of the machine tool industry which is less known, and that is, that it is the machine tool which keeps all of the rolling stock of the railways and other transport units vital to national life in good repair.

There is a story of a railroad manager in the U.S.A. who saved his railroad millions of dollars by spending less on new equipment and more on machine tools to keep old equipment in good running order. In this manner the railway has often saved on repair costs in a short period more than enough to pay for the new machine tools, thus demonstrating the economy of keeping machine tool equipment up to date instead of attempting expensive repairs with old or obsolete tools.

It is difficult to over-estimate the importance of improved machine tools to the national economy, because the recent trend toward using materials of higher strength results in a definite saving in iron and steel tonnage. The Government has just increased its steel production program by 5,000,000 tons to provide for 10,000,000 tons production in 1941. Economic analysts have pointed out that this will presumably require the construction of 150 new vessels to carry the necessary amount of imported ore.

Each ton of iron or steel that is saved through the use of better materials in machine tools is equal to a ton added to Japan's supply of this vital material. The same ton simultaneously means a saving of 1.85 tons of ore, the saving of 1.85 tons of badly needed shipping space, and a reduction of required new shipping tonnage, not to mention a saving in essential imports which the nation is striving to effect in many fields.

Improvements in the design and materials of machine tools provide greater accuracy and longer life which will result in a direct reduction of machine tool imports. As machine tools are the cornerstone of modern industry, such improvements will confer the benefits of economy and increased production upon the nation's entire industrial system.

The production of machine tools during the past three years has increased considerably in Japan. As the domestic production has not kept pace with the demand, imports have also increased.

Imported machine tools include gear-cutting machines, grinding machines, turret lathes, milling machines and those required for precision work. It is obvious that domestic production is confined to rougher machines. Even with these, however, the performance is not equal to machines of first-class makers in Europe and America. Before Japan can export machine tools to foreign markets, the domestic demand must be sufficiently supplied; and further, domestic machine tools must be greatly improved and produced in large quantities in order to meet the competition of foreign makers.

Users are co-operating to bring about the improvement of machines. To standardize machine tools the Bureau of National Resources established a special committee in February 1935 with members chosen from the government departments and private concerns, and at the same time the Machine Tool Builders' Association was requested to design and build the following machines:

(1) Direct coupled motor-driven plain radial drill. By Ikegai Iron Works.
(2) Direct coupled motor-driven, all geared or single pulley-driven engine lathe. By Niigata Iron Works.
(3) (*a*) Direct coupled motor-driven horizontal milling machine.
 (*b*) Direct coupled motor-driven universal milling machine. By Tokyo Gas and Electric Industry Co.
(4) Cone pulley type engine lathe. By Okuma Iron Works.

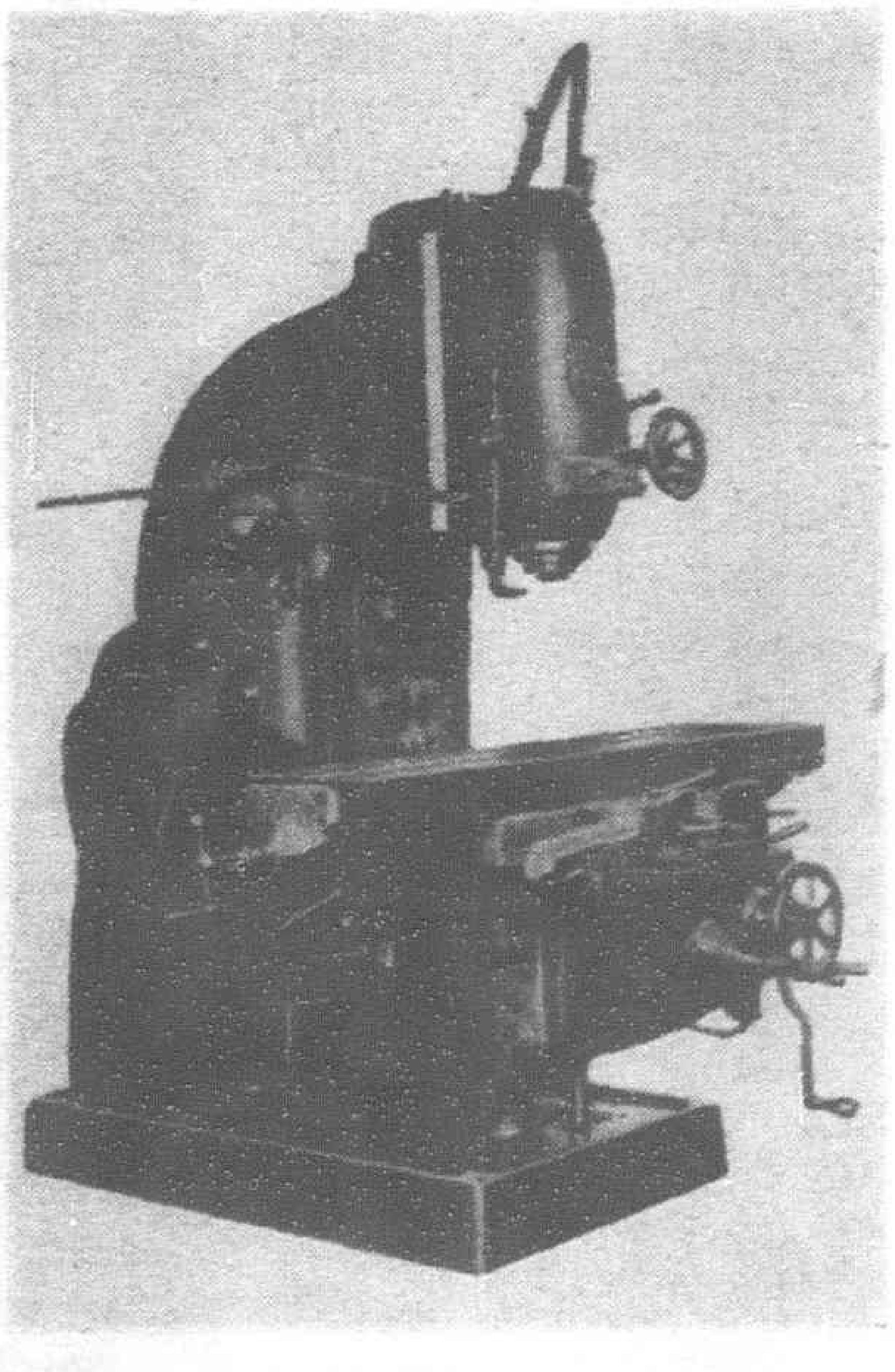


Fig. 1

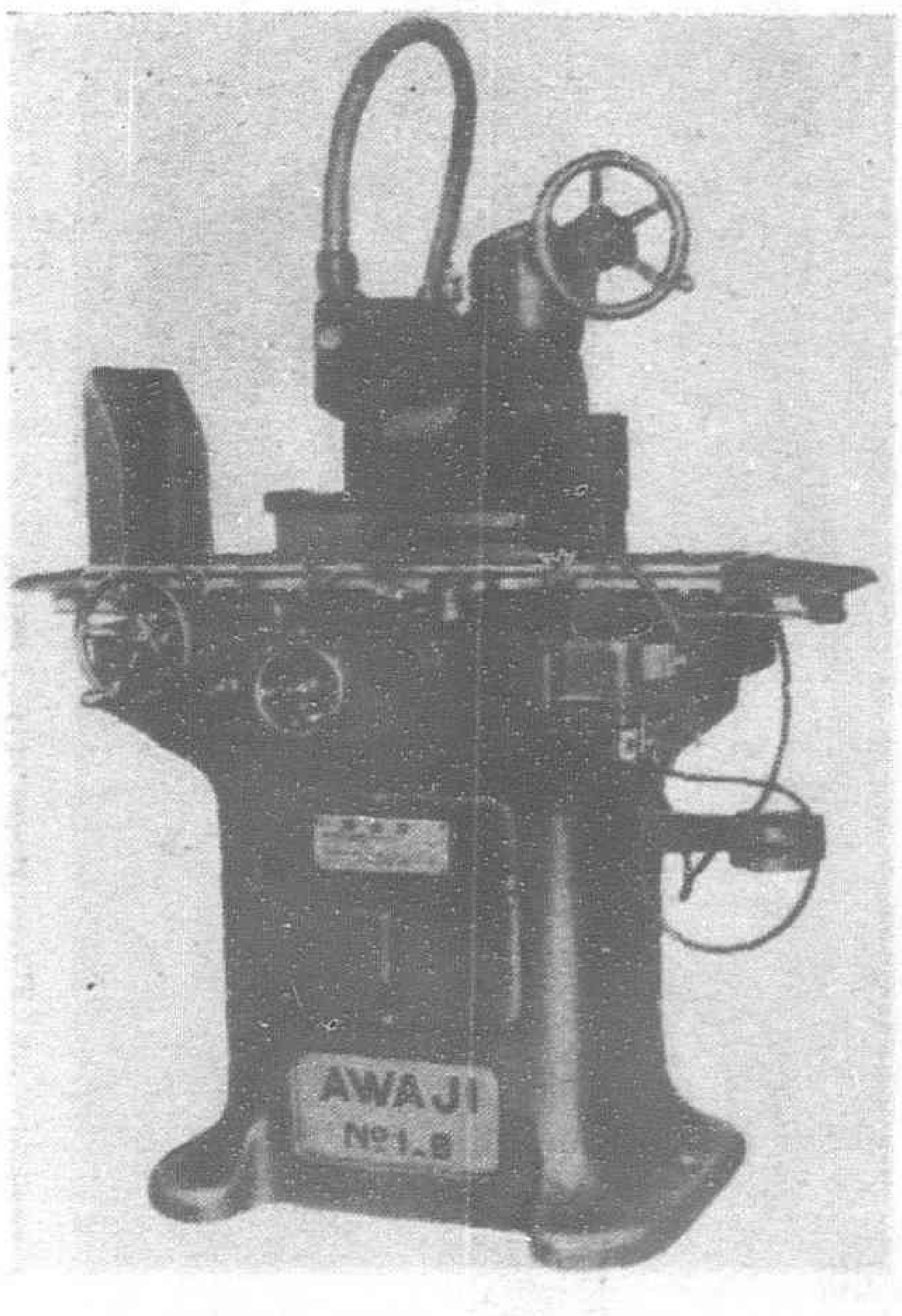


Fig. 2

Fig. 1.—860 by 370 by 350 mm. Verticle Milling Machine, made by the Tokyo Gas & Electric Industry Co. The main spindle is of heat-treated nickel-chromium steel No. 2, recommended by the Society of Mechanical Engineers of Japan. The change gears are of heat-treated nickel-chromium steel No. 1, recommended by the same Society.

Fig. 2.—No. 1-B Surface Grinding Machine, hydraulic feed, made by the Awaji Iron Works. This machine is designed and made for mass production purposes. The bed box type is cast in one piece, the bottom part forming an oil reservoir. The wheel head with the motor is supported on the back of the machine. The table travels on flat and V ways on the saddle, the feed being by means of hydraulic power. The wheel head slides up and down with the motor. The bed, table and saddle are of nickel alloy cast iron of the semi-steel type. The wheel spindle is of heat-treated nickel-chromium steel No. 3.

The Imperial Government Railway Department held a meeting of their technical engineers in conjunction with principal makers of machine tools in June 1936, with the object of improving machining practice, structural materials, performance, and design for machine tools. Since then the committee has been investigating car wheel lathes, high speed lathes and high speed milling machines, under the direction of a special committee.

Meanwhile, the Society of Mechanical Engineers of Japan, established in 1923, has drawn up typical specifications for lathes, upright drills, radial drills, horizontal, vertical and universal milling machines, and the specifications, with recommendations for the materials, were issued in 1930.

The specifications cover the design, construction and materials based upon the common objects of high speed, accurate machining and strength. Among the materials used in the construction of these machine tools nickel alloy steels are recommended for the vital parts as follows:—

For the headstock spindles and tailstock spindles in lathes, the spindles in drilling machines, and the spindles in milling machines: heat treated 1.5 per cent nickel-chromium steel No. 2, containing C 0.30-0.40, Mn 0.50-0.80, P. 0.04 max., S 0.045 max., Ni 1.00-1.50, Cr 0.45-0.75 per cent. Hardness, Shore 38-40.

For the back gears and change gears in lathes, the driving gears in drilling machines and the gears in milling machines: case hardened 3.5 per cent nickel steel No. 1, containing C 0.15-0.25, Mn 0.50-, 0.80, P 0.04 max., S 0.045 max., Ni 3.25-3.75 per cent. Hardness, Shore 90.

Stimulated by the importation of high-speed steels and super high-speed cutting tools, similar high-speed cutting tools are being produced in Japan on a large scale. In order to take advantage of these improved cutting tools it is absolutely necessary to design a domestic machine tool to resist high-speed revolution

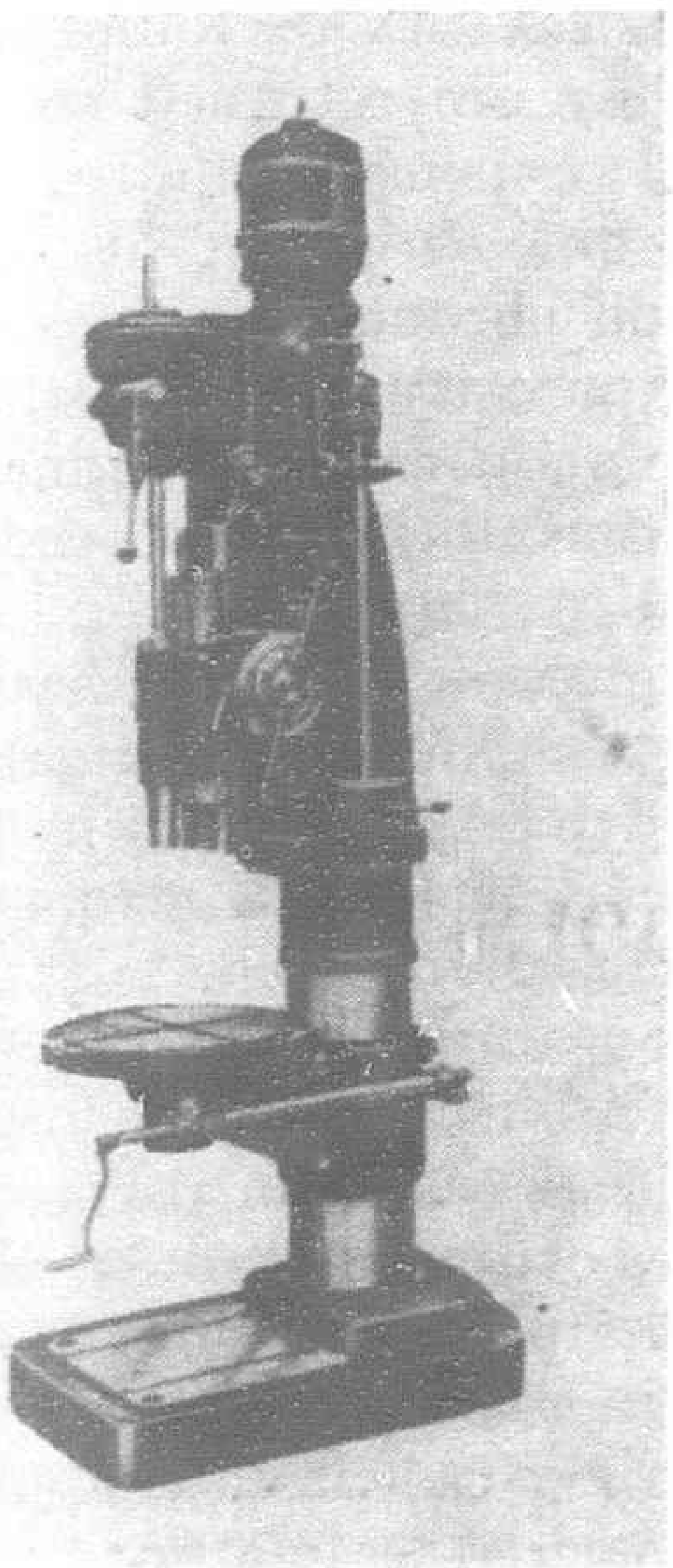


Fig. 3

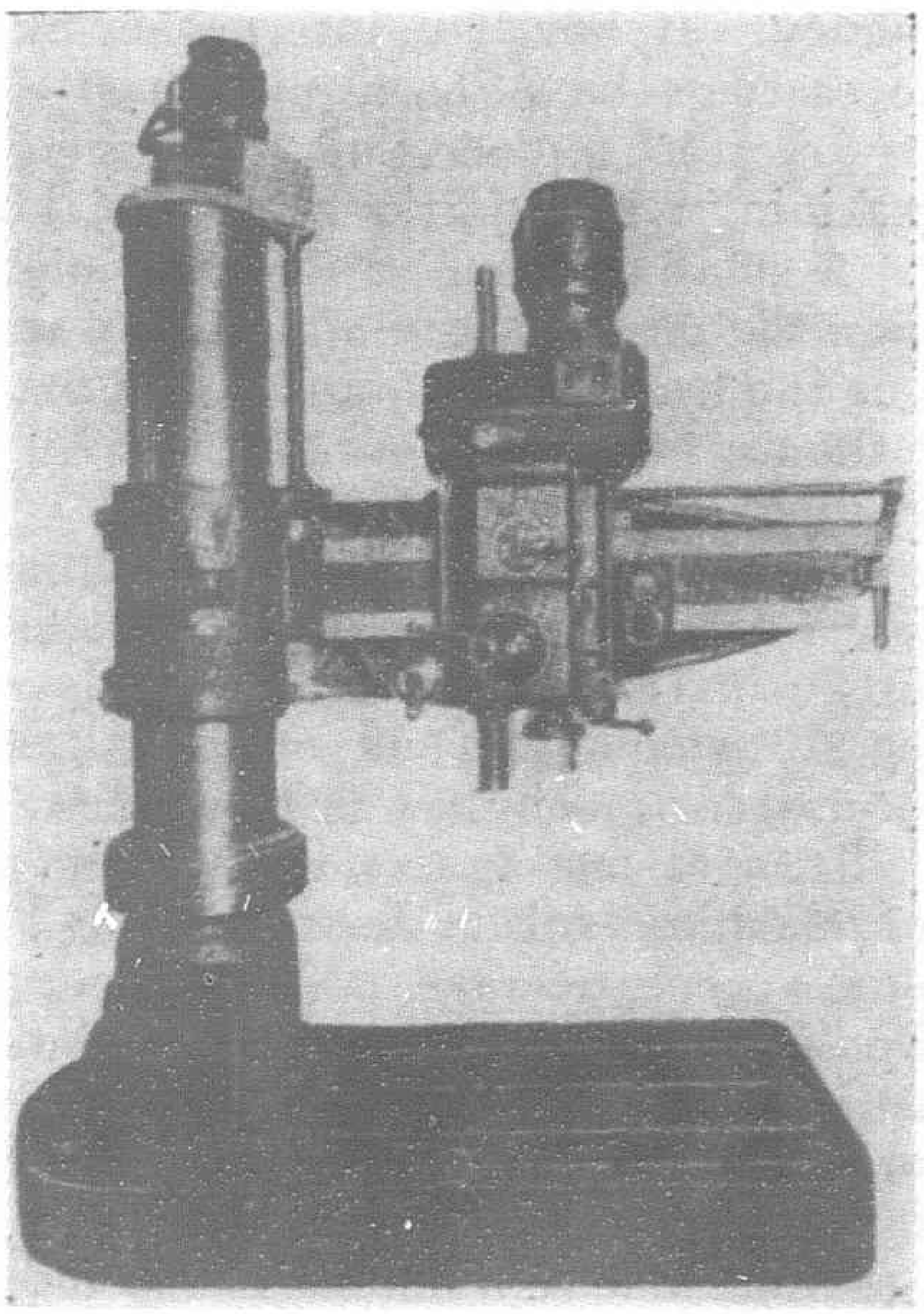


Fig. 4

Fig. 3.—40 mm. High-speed Upright Electric Drill made by the Roku-Roku Shoten. Gears giving the main spindle and feed gears are made of 2.5 per cent nickel-chromium steel, hardened and ground.

Fig. 4.—Type D 1,200-mm. Radial Drill, made by the Ikegai Iron Works. The box-shaped spindle head is rigidly constructed and the driving motor is mounted on the head. The driving gears and feed gears are enclosed. The long heavy main spindle is made of nickel-chromium steel, hardened and ground, and is supported by roller bearings at both ends. The gears are also made of special steel.

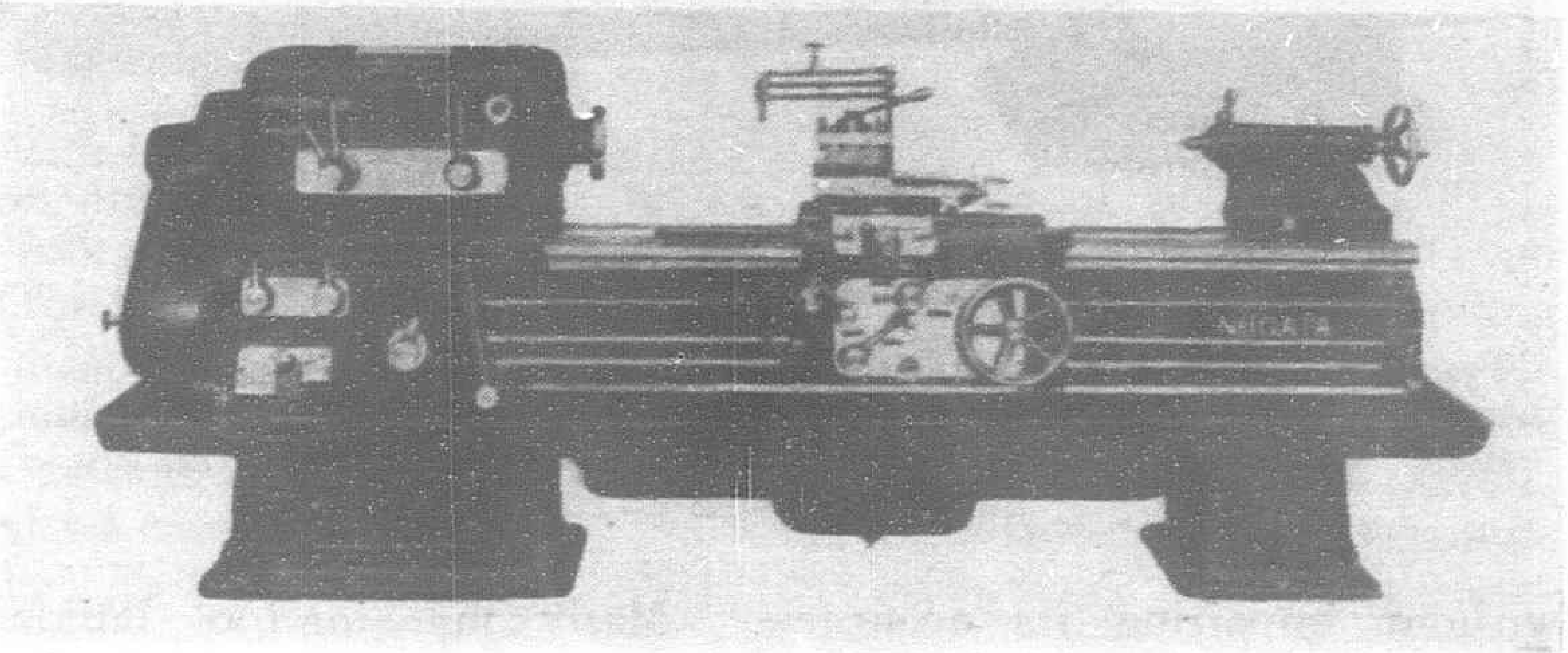


Fig. 9

S Type Geared Head Lathe, made by the Niigata Iron Works. Nickel-chromium steel No. 2 is used for the main spindle, and nickel-chromium steels Nos. 1 and 2 for all the gears, as recommended by the Society of Mechanical Engineers of Japan. The steels are used after being heat treated.

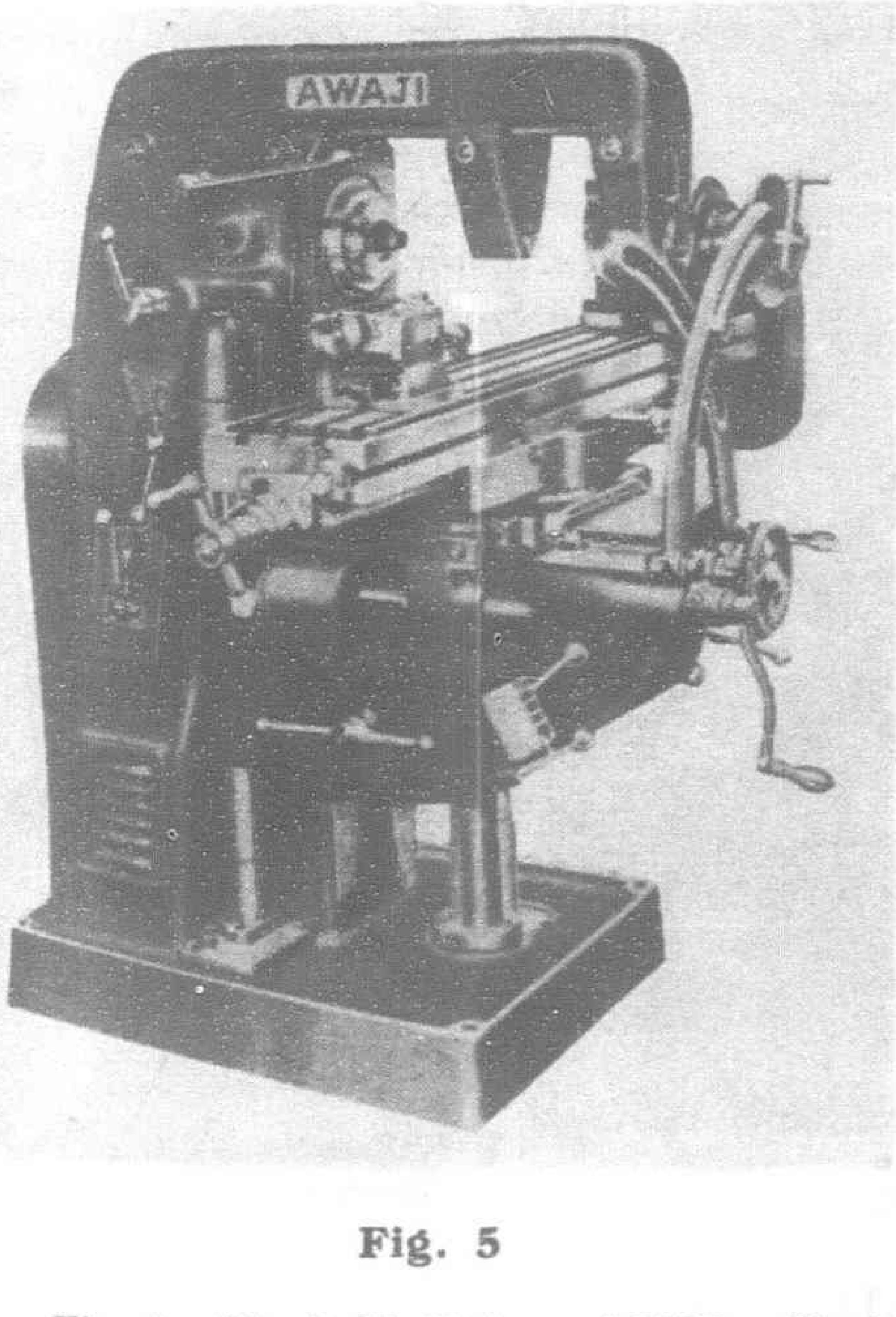


Fig. 5

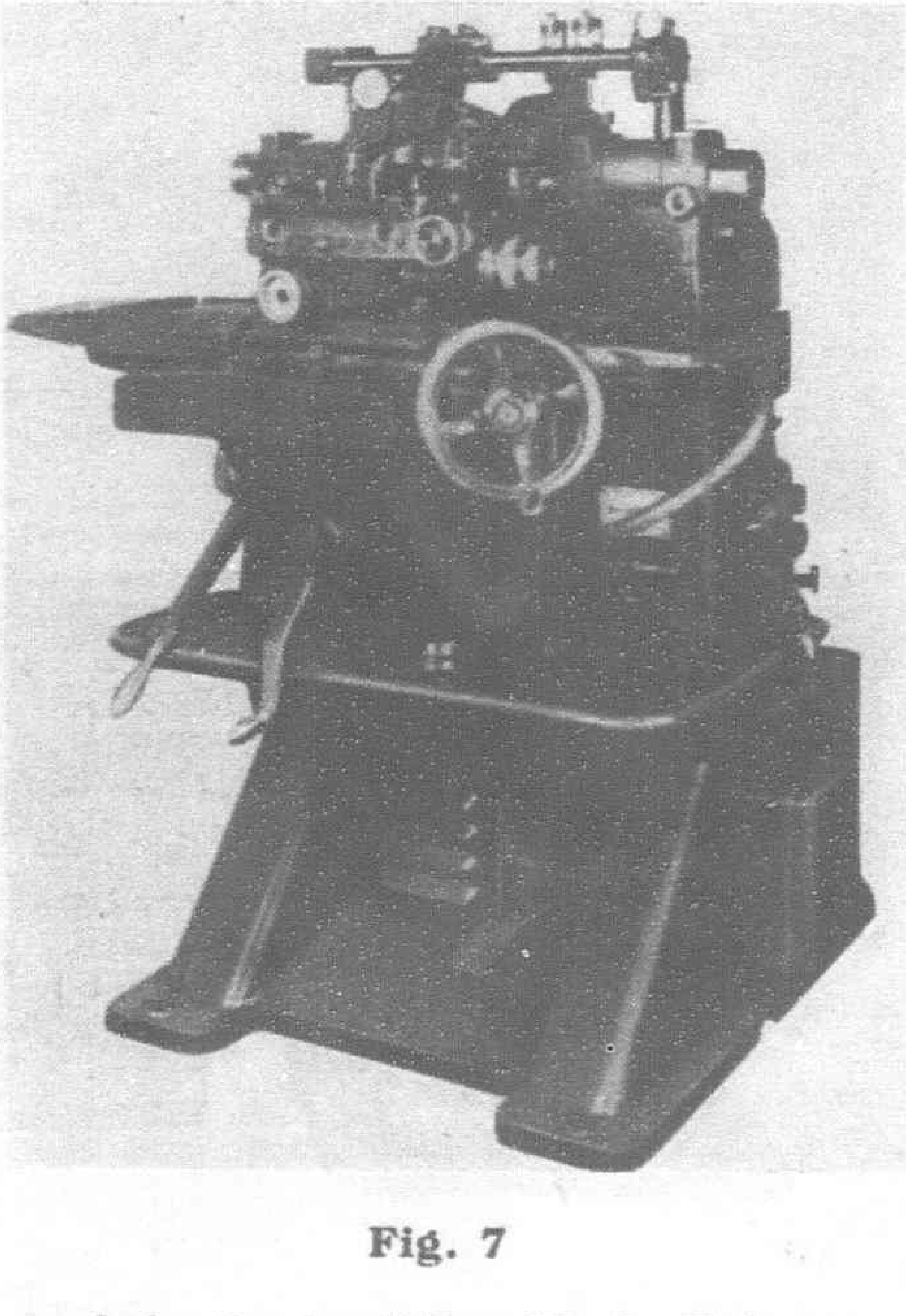


Fig. 7

Fig. 5.—No. 2 CL Universal Milling Machine, made by the Awaji Iron Works, Tokyo. The column is strongly constructed in pyramid form. Besides giving rigidity to knee and saddle, this construction withstands milling operations at high speeds. These parts and the table are made of nickel cast iron of the semi-steel type, possessing tensile strength over 27 kg/mm², and a hardness above shore 38. The spindle which operated at 23 to 1,200 r.p.m. is mounted on tapered roller bearings made of nickel-molybdenum steel. The spindle is of heat-treated No. 1 nickel-chromium steel. The change gears controlling spindle speed and the table feeds are of heat-treated No. 2 nickel- chromium steel

Fig. 7.—Limit Gauge Grinding Machine, made by the Oriental Precision Machine Co., Ltd. The bed and table are made of heat-treated nickel-chromium cast iron of the following analysis and mechanical properties:

T.C. 3.18, Si 1.60, Mn. 1.34, Ni 1.3, Cr. 0.17 per cent.

Tensile Strength	27.9 kg. mm².
Transverse strength	1,780 kg.
Deflection	3.48 mm.
Brinnell hardness	220-228

The grinding wheel spindle and lapping spindle are of nickel-chromium steel.

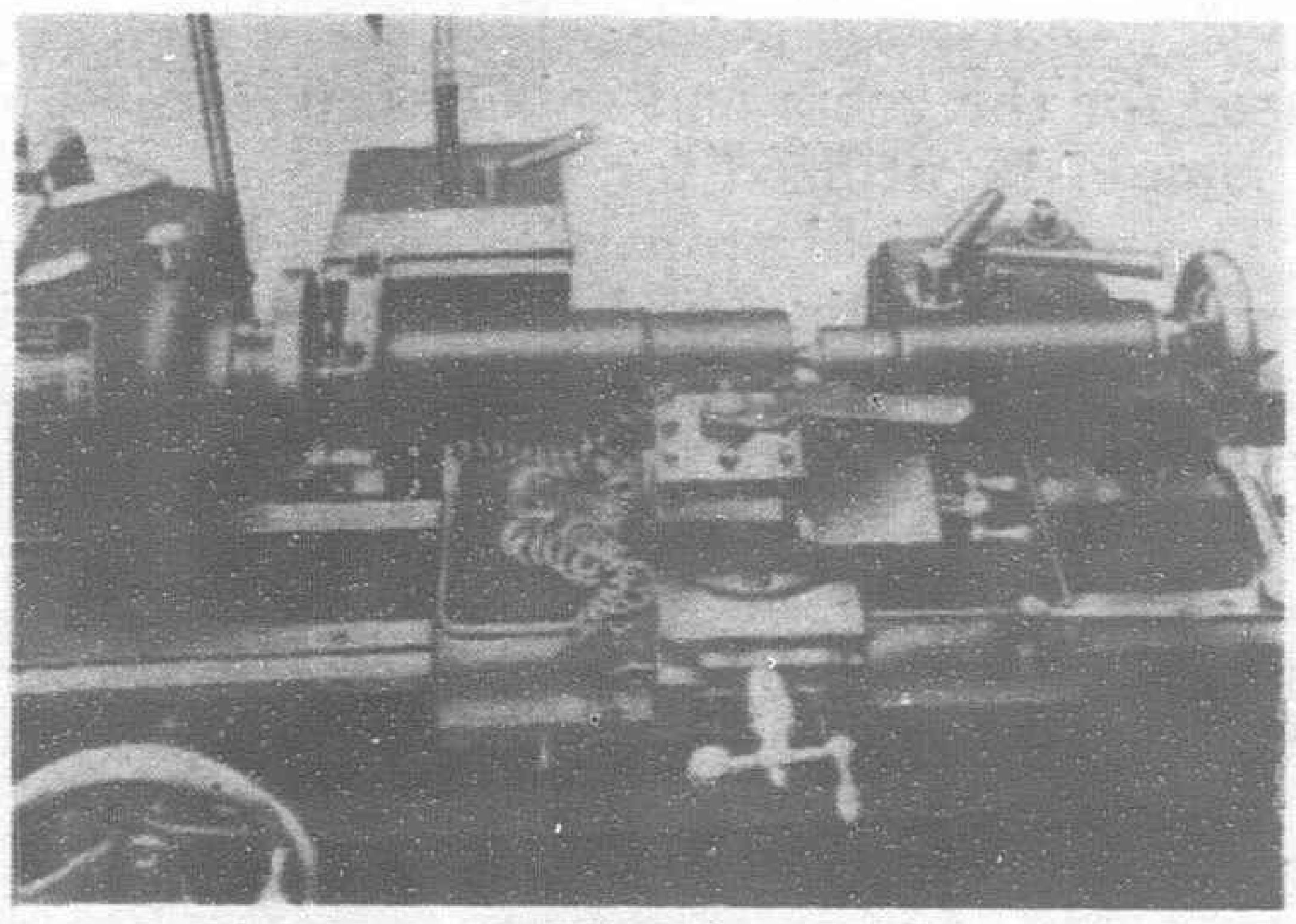


Fig. 6

Roku-Roku Shoten 225 by 400 mm. Manufacturing Lathe. Change gears and feed gears are of 2.5 per cent nickel-chromium steel, hardened and ground

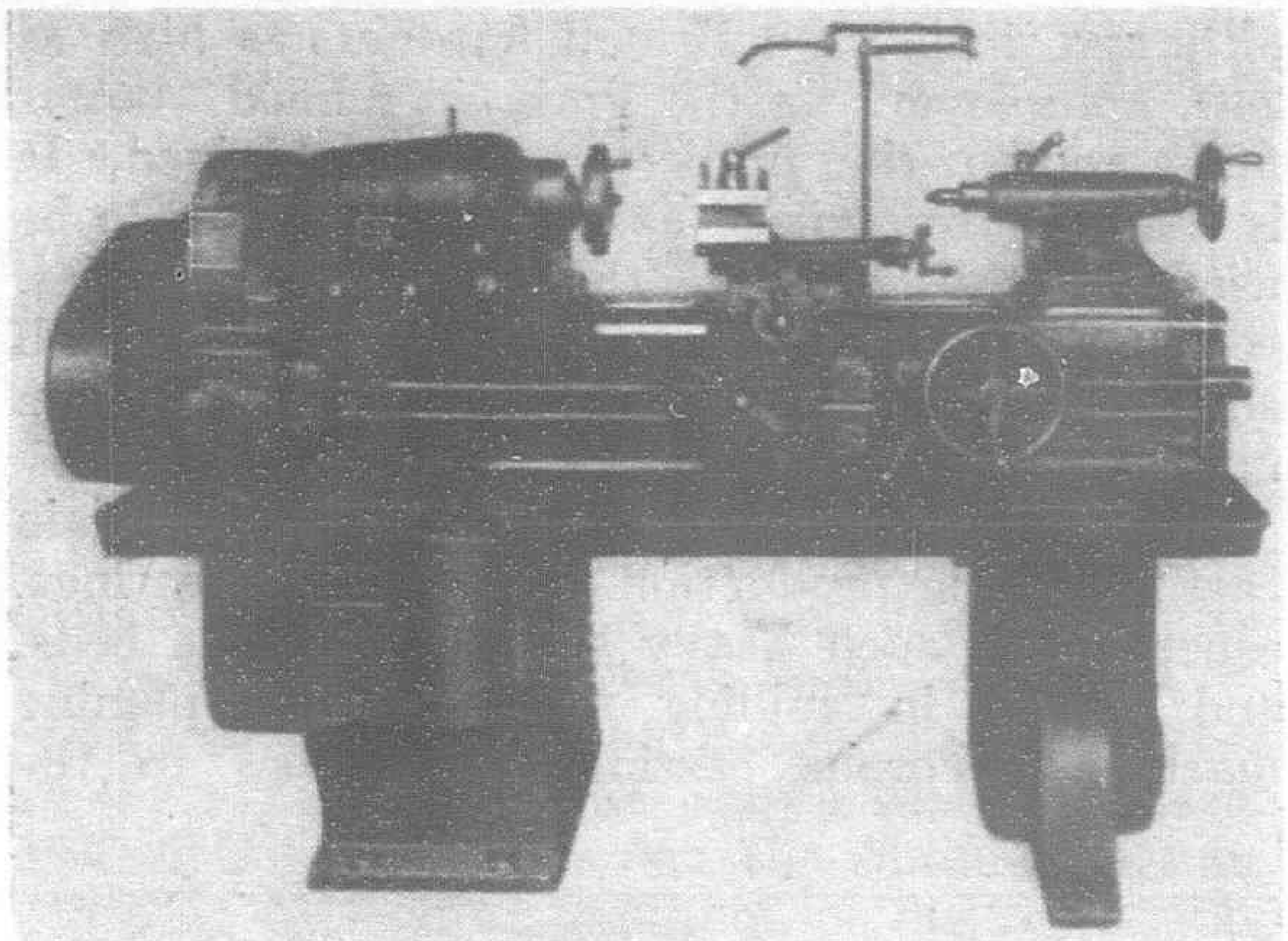


Fig. 8

Type OHW High-speed Lathe coupled to Electric Motor, made by the Okuma Iron Works. This lathe is designed to employ new cutting tools such as Widia, and is driven by a 3-h.p. motor. The main spindle operates at speeds up to 900 r.p.m. With the exception of the check and brake in the driving pulley, control is by electric motor. The headstock is built in box shape. The main spindle is made of nickel-chromium steel, and the driving gears, with ground and lapped teeth, are also of alloy steel.

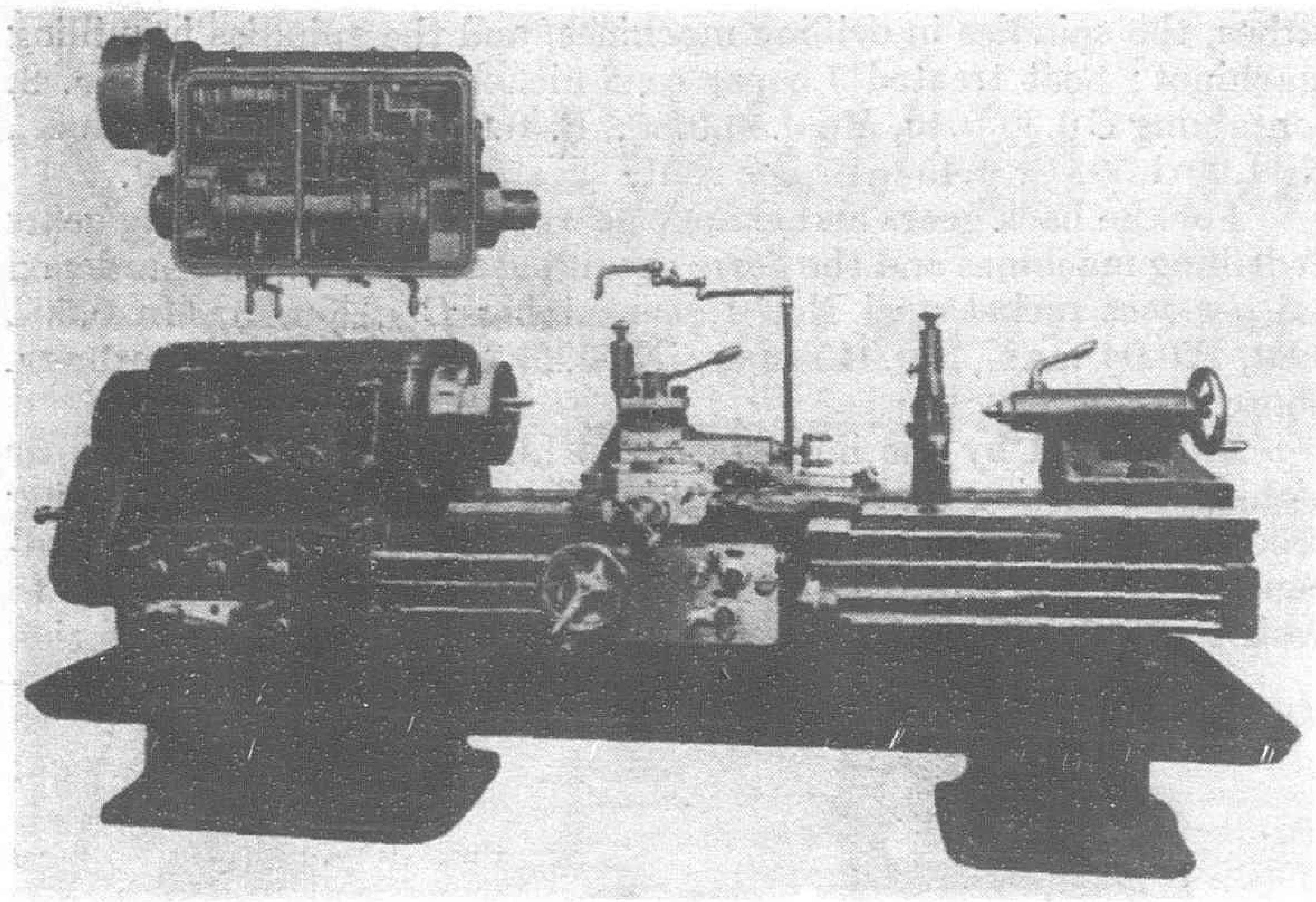


Fig. 10

Type D 20 High-speed Lathe, made by Ikegai Iron Works. The main spindle, headstock gears and change gears are made of nickel-chromium steel. A total of 60 roller and ball bearings are used, and all are of nickel-molybdenum steel.

without impairing its accuracy. Many machine-tool builders are now using the nickel alloy steels recommended by the Society of Mechanical Engineers of Japan in the construction of their products, and some builders were using the materials before the Society's recommendations were made.

Further, more productive machines for accurate machining are required as a result of the rapid advance in industries, especially the automobile industry and aircraft manufacture. It is not only necessary that alloy steels which have high strength and toughness be used for the gears and spindles, but also an improved alloy cast iron should be utilized for the cast parts.

The mechanical properties of steel have been improved by adding nickel and other alloying elements, and the strength, hardness and toughness of the nickel alloy steels have been improved further by heat treatment. Nickel alloy steels have been selected for main spindles running at high speeds and for gears where high strength, hardness and wear resistance are required.

The benefits obtained by adding nickel to steel have also been effected by its addition to cast iron. For example, cast iron with about 1 per cent of nickel possesses a tensile strength double that of plain cast iron. As the structure of this alloy cast iron is uniform through both heavy and light sections, it is readily machinable, although it shows a Brinell hardness as high as 240. Moreover, as the grain is refined, better finish and wearing properties can be obtained. It is therefore recognized as the best material to be used for the ways in the lathe beds, tables, columns and knees of milling machines, and all sliding parts formerly made of ordinary cast iron in general machine tools.

One of the most difficult problems with plain cast iron is the production of non-porous castings, especially in such heavy sections as lathe beds, and tables in milling, grinding and planing machines. Porous castings mean loss to the foundry. If, however, internal shrinkage or cavities are found after the castings have been machined and they are returned to the foundry for replacement, the time and expense required for machining is an additional loss to the machine shop.

A small addition of nickel or nickel and chromium refines and closes the grain of iron and acts to reduce porosity of the castings. Thus the loss both in foundry and machine shop can be eliminated by the use of nickel alloy cast iron, in addition to the time saved by avoiding rejections.

Nickel alloy cast iron is a comparatively new material, having been introduced into Japan by the Japan Nickel Information Bureau in 1933, but it has been developed in America during the past 15 years, and its excellent characteristics as a structural material for machinery in general are universally known.

It is interesting to note that one of the leading makers of precision machine tools in Japan is using alloy cast iron not only for the column, knee, overarm and table, but all other cast iron parts such as pulleys, handles, levers, etc. The maker claims that nickel alloy cast iron is more easily machinable than the plain cast iron and is at the same time a reliable material that increases efficiency.

In general, the advantages of nickel alloy cast iron as applied to the machine tool industry may be summarized as follows:

(1) The profits of the foundries are enhanced. It is easily produced in any foundry and minimizes rejections.
(2) The efficiency of the machine shop is increased, as nickel alloy cast iron is readily machined at a saving in tool costs.
(3) The higher efficiency of the machines obtained by the increased use of alloy cast iron enhances the reputation of the machine-tool maker.
(4) More advantages for the users of machine tools of higher efficiency are secured, as parts of correct sizes can always be duplicated in large quantities, thus minimizing repairs.
(5) Finally, the prosperity of general consumers of the products is assured, as the efficiency of such manufacturing machinery guarantees that the parts produced will be of correct size and easily assembled.

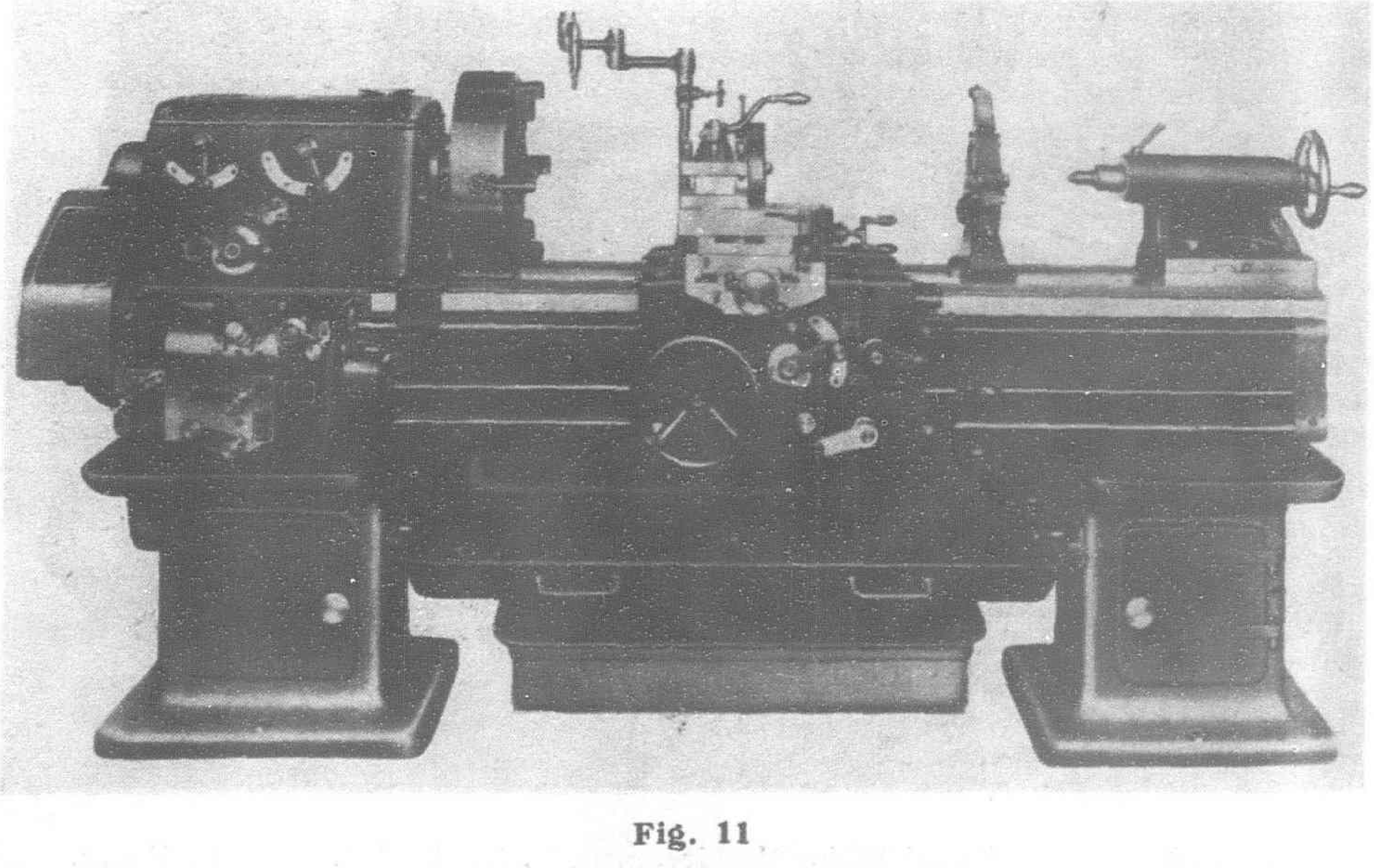


Fig. 11

LB Type High-speed Lathe made by the Osaka Machine Manufacturing Co. In this geared head lathe, high carbon nickel chromium steel is used for the main spindle and gear shafts, and low carbon nickel-chromium steel for all the gears. The lead screw and feed shaft are of the same high carbon nickel alloy steel employed for the main spindle, and the lead screw is threaded by a thread-milling machine of modern type.

THREE MILLION RUPEE BRIDGE

The new triple-arch bridge over the Kelani Ganga, at Colombo, Ceylon, which is designed to relieve the congestion at Victoria Bridge, will cost approximately three million rupees. The present proposal is to extend Base Line Road over the fields to the Peliyagoda junction on the far side of the river, with also a link road to Nagalagam Street and Prince of Wales Avenue junction. It will be a high-level road. The contemplated design of the new bridge is one comprising three central arch-bands over the river flanked by two straight spans at both the Peliyagoda and Sedawatte ends. It has been suggested that both the Victoria bridge and the new bridge may be utilized for one-way traffic, or in the alternative the Victoria Bridge to be utilized for slow-moving bullock cart traffic, and the new bridge reserved for fast motor transport.

The Mining Industry of Manchoukuo

(Contemporary Manchuria)

Manchoukuo is mainly known as an agricultural country, but its potentiality as a mining country is equally great, for she is endowed with inestimable deposits of various valuable minerals which are quite indispensable to her economic development.

Prior to the advent of the new State, the development of the rich mineral resources of the country was greatly impeded by the lack of capital, defective means of communication and by prevalent disturbed conditions which hindered large-scale surveying operations. Since the foundation of Manchoukuo, however, conditions have radically changed and the mining industry has made remarkable progress, thanks chiefly to the enormous investment of Japanese capital and to the rational exploitation of mineral resources under enlightened State control. With the restoration of peace and order even in remote parts of the country along with the establishment of a network of communication facilities, a more vigorous and uninterrupted development of the mining industry in Manchoukuo is definitely assured.

The first sign of interest in mining manifested by the Manchoukuo Government took the form of the Mining Law and regulations connected therewith, promulgated on August 1, 1935, which were put into force on September 1, the same year. The former mining regulations classified the legal minerals into three groups and contained different stipulations concerning the procedure for filing applications for mining permits for each class of minerals. They also specified different categories of taxation. Under the new Law, however, all these distinctions were abolished and a common procedure for the acquisition of mining privileges established, while forty different minerals, considered important from the standpoint of Manchoukuo's mining and industrial policy, have been designated as legal minerals.

Hsian open-cut coal mine, whose total deposits are estimated at 600,000,000 tons

The forty legalized minerals are gold ore, silver ore, platinum ore, copper ore, lead ore, zinc ore, tin ore, iron ore, antimony ore, aluminium ore, nickel ore, cobalt ore, iron sulphate ore, chromite ore, mercury ore, arsenic ore, phosphorous ore, sulphur, graphite, coal, petroleum (including combustible natural gas closely related to oil-bearing strata), asphalt, oil shale, limestone, dolomite, magnesite, fluorspar, felspar, fire clay, barite, saltpetre, gypsum, silica, talc, asbestos and mica.

The former mining regulations and the Japanese Mining Law divide mining privileges into prospecting and mining, but in reality the system of granting prospecting privileges does more harm than good to the development of the mining industry. In consideration of this fact, the new Mining Law limits mining privileges purely to mining. In order, however, to encourage prospecting and mining, the above law contains provisions reducing the mine-lot tax by 50 per cent for the period of three years after obtaining mining privileges.

Since the vast mineral reserves of the country are inexhaustible with present available capital and technique, the Manchoukuo Government welcomes foreign investments in the mining industry. From this standpoint, it is provided in the Mining Law that foreigners may also engage in mining if they obtain special permission from the Minister of Industry.

From the viewpoint of national defence and preservation of natural resources, the Law forbids unsystematized mining by private interests, stipulating that application for mining may be restricted by designating the districts or minerals concerned by Imperial Ordinance.

Regarding mine-lots, the new legislation specifies that a unit of a mine-lot shall be a quadrilateral formed by the longitudinal and latitudinal lines. The position of each corner of the quadrilateral shall be determined by the minutes of longitude and latitude, and the two opposing sides shall be so situated as to have a difference of one minute both longitudinally and latitudinally.

If a person desires to mine within a mine-lot held by a legal lessee, the Mining Law provides that he can do so upon signing with the said lessee a contract which is to be officially registered. This privilege, known as "leased mining privilege," is unprecedented even in foreign countries. The qualifications and legal restrictions binding the lessor (lessee of the Government) apply similarly to the lessee. In other words, he, the lessee, assumes all legal obligations of the lessor and, in accordance with the provisions of the Law, is permitted to carry on joint operations and investments with foreigners. Through this convenience, many new companies have been established and extensive and thorough surveys conducted, which have revealed that Manchuria is literally an inexhaustible mine of wealth.

For the purpose of controlling exploitation of the important mineral resources, the Government has established Mining Inspectorates at Hsinking, Mukden, Tsitsihar and Jehol City as local administrative organs under direct control of the Department of Industry. At the same time, it has established the Manchuria Petroleum Company and the Manchuria Mining Development Company as special corporations to secure a rational management and development of the oil and other mineral industries.

In addition, the Government launched last year its Five Year Industrial Development Plan wherein special emphasis has been laid upon the exploitation of the mineral resources in accordance with the fundamental principle of the Japan-Manchoukuo economic control policy.

The iron industry is given primary consideration in the Five Year Plan, because of its direct bearing on national defence and its indispensability to communications and construction enterprises. In this important mineral, however, Manchoukuo is still dependent upon foreign countries for supply. The Five Year Plan proposes therefore, to make the new State self-sufficient as far as iron is concerned, and also to meet the rapidly increasing demand for the metal in Japan. For this purpose plans have been formulated for exploitation of the rich iron deposits in the Tungpientao and other districts, as well as the expansion of the Showa Steel Works at Anshan and the Penhsihu Iron Works, on the Mukden-Antung line, and the employment of modern methods of ore refining to boost the present annual domestic production of pig iron to 2,530,000 tons * and of steel to 1,850,000 tons.

Shale oil constitutes the basis of liquid fuel production in Manchuria, the centers which are Fushun and Sanhsing, where the goal of the Five Year Plan is set at 800,000 tons annual production. Similarly, an annual output of 800,000 tons of oil by liquefaction of coal at Fushun, Hsinchiu, Chientao and Ssupingkai is also projected, for the realization of which utmost efforts are being exerted by the Department of Industry in co-operation with the South Manchuria Railway Company and the Manchuria Coal Mining Company.

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* All weights are given in metric tons

Coal is the most important mineral in Manchoukuo, with an estimated deposit of over ten billion metric tons. Taking into consideration the great value of coal as the principal motive power in modern industry and the rapidly increasing domestic and Japanese demand for the product, the Five Year Plan aims to increase annual production to 25,500,000 tons upon its completion.

Production of 200,000,000 yuan worth of gold within the next five years is the aim of the government, and for this purpose adequate steps will be taken to encourage gold mining. The present annual production is around 10,000,000 yuan.

In addition to the above minerals, the Government plans to increase the production of asbestos and lead in order to meet their increasing demand in Japan. To boost the output of lead, attention will be directed to increasing the production capacity of the Manchuria Lead Mining Company from 2,200 tons to 12,400 tons, while asbestos production by private interests will be encouraged with the object of attaining 5,000 tons annually.

Special Mining Corporations

Since the various rights previously held by Japan in Manchuria were accorded full and effective protection by the Manchoukuo Government upon its inception, four major special mining corporations have been established under joint sponsorship of the Department of Industry and the South Manchuria Railway Company, with the latter furnishing the greater part of the capital. Through these concerns, a rational exploitation of the vast mineral resources of the country under enlightened State control is being accomplished. Many mines containing rich deposits have been discovered and a very promising future is in store for the mining industry.

The following is a brief outline of the conditions of the special corporations.

Alluvial mining in the Hsingan Mountains

The Manchuria Gold Mining Company

This company was established in May, 1934, following the discovery of prospective gold fields in North Manchuria as a result of extensive surveys conducted for over a year since January, 1933. Capitalized at 12,000,000 yuan (one-fourth paid-up), of which 5,000,000 yuan each is invested by the Manchoukuo Government and the South Manchuria Railway Company, and 2,000,000 yuan by the Oriental Development Company, the corporation, with its head office in Hsinking, has a monopoly of gold mining in the former provinces of Kirin and Heilungkiang.

Its functions include the advancing of funds to concerns engaged in gold mining and refining, the assumption of the management of gold mining enterprises conducted by others, the entrusting of the management of some of its own enterprises to others, and the sale and purchase of alluvial and refined gold. With the approval of the Minister of Industry, the company is also permitted to participate in other accessory undertakings.

The participation of the general public interested in the exploitation of gold deposits within its allotted sphere of operations is welcomed by the Manchuria Gold Mining Company in view of the difficulty of effecting satisfactory operations in such a wide area by itself. An announcement to that effect was issued by the corporation jointly with the Manchoukuo Government on the occasion of the enforcement of the new Mining Law.

The Manchuria Coal Mining Company

With the twofold object of effecting rational exploitation of coal mines and fundamental control of the coal mining industry of the country, the Manchuria Coal Mining Company was incorporated in May, 1934, with a capitalization of 16,000,000 yuan, subscribed jointly by the Manchoukuo Government (8,000,000 yuan in kind) and the South Manchuria Railway Company (5,000,000 yuan in kind and 3,000,000 yuan in cash). Necessitated by the expansion of its enterprise resulting from the enforcement of its five-year plan of increased production, aiming at 10,000,000 tons annual output, the capitalization was raised to 80,000,000 yuan in April, 1937, the 64,000,000 yuan increase being borne equally by the Government and the S.M.R. Its head office is located in Hsinking.

Steady progress has been witnessed in the activities of the Company ever since its establishment. Besides undertaking large-scale development of the Hsinchiu, Pataohao, Fuchou and Weimingshan Collieries, which are under its direct management, the Company is directing its efforts towards further expansion of its sphere of control. As a step towards this realization, it has purchased the greater part of the shares of the Holikang, Hsian and Peipiao collieries.

Thorough surveys conducted recently have revealed that the estimated deposits of the Hsinchiu coal field, for the exploitation whereof special emphasis has been laid in the Company's five-year plan, reach 4,000,000,000 tons.

Coal mines operated or controlled by the Company, in addition to those above mentioned, are located at Mishan, Chalainoerh, Hoshihling, Muleng and Fuhsin.

The Manchuria Petroleum Company

This company was established in February, 1934, as a Manchoukuo juridical entity, for the purpose of exploiting the oil resources of the country and of regulating the domestic demand and supply of petroleum.

Its initial capital of 5,000,000 yuan, of which 2,000,000 yuan was invested by the South Manchuria Railway Company, 1,000,000 yuan by the Manchoukuo Government, and 500,000 yuan each by the Nippon Oil, Ogura Oil and the Mitsui and Mitsubishi interests, was recently raised to 10,000,000 yuan. Of the 5,000,000 yuan increase, 2,500,000 yuan was furnished by the Manchoukuo Government and the remaining 2,500,000 yuan equally by the Central Bank of Manchou, the Nippon Oil, Mitsui, Mitsubishi and S.M.R. Companies.

Abiding by the Manchoukuo Oil Monopoly Law, enforced in April, 1935, and conforming to the plan for placing petroleum products in Manchoukuo on a self-supporting and self-sufficing basis, the Company is engaged in buying, selling and refining of oil, as well as the investigation and prospecting of oil resources in the country. It has a large plant at Kanseishi, across the Bay from Dairen, where crude oil imported from foreign countries is refined and sold to the Manchoukuo Government, which has a monopoly of the sale of gasoline, kerosene, gas-oil, heavy oil, benzol, and fuel oil substitutes.

The Manchuria Mining Development Company

In accordance with the provisions of Article 9 * of the Mining Law, the Manchuria Mining Development Company was established by Imperial Ordinance No. 91, promulgated in August, 1935, which stipulated that the above company will have exclusive right to mine the following twenty-three minerals: platinum ore, lead ore, zinc ore, tin ore, iron ore, antimony ore, aluminium ore, nickel ore,

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* Article 9 stipulates: "In case it is deemed necessary for national defence or preservation of national resources, application for mining may be restricted by designating the districts or minerals concerned by Imperial Ordinance."

iron sulphate ore, manganese ore, scheelite ore, molybdenum ore, mercury ore, phosphorous ore, coal, petroleum, oil shale, magnesite, fluorspar, fire clay, saltpetre, talc and asbestos.

However, any person who discovers mines containing any of the above deposits and wishes to exploit them, may do so upon applying for a lease of mining privileges and payment of royalty to the Manchuria Mining Development Company.

The Company's business includes the acquisition and lease of mining privileges, refining ores, and investment and financing of refining enterprises. With the approval of the Minister of Industry, it is allowed to conduct other accessory enterprises. Its total capitalization is 5,000,000 yuan, subscribed equally by the Manchoukuo Government (1,000,000 yuan in kind and 1,500,000 yuan in cash) and the South Manchuria Railway Company (200,000 yuan in kind and 2,300,000 yuan in cash).

Principal Minerals

In the following the principal mineral resources in Manchuria, with the state of their development prior to and after the Manchurian Incident, will be presented.

Gold has been mined in Manchuria, especially in North Manchuria, from ancient times as there are historical facts showing that gold miners in the Moho district at one time established a republic of their own in opposition to the Chinese Government which held sway over the region. Records of that time show that as much as 500 poods of the precious metal (present value 19,000,000 yuan) were mined in the Moho district alone in three years.

The Moho district was later reverted to Chinese control through the dexterous policy of Li Hung-chang, Senior Grand Secretary of State, and the exploitation of its gold resources was conducted as a government enterprise, but no appreciable progress was witnessed owing to inefficient supervision and management.

The exploitation of the rich gold deposits was later opened to private interests, and as a result many new mines were opened in various parts of the district. These mines yielded enormous profits, instances of which are revealed by the fact that the Fengyuan Mine, near Heiho, gave large bonuses to its employees.

In South Manchuria, the Chiapikou Gold Mine in Kirin Province ranked as one of the most famous gold mines under the former régime. Through this veritable treasure house, Han Teng-chu, its owner, was for a time able to live in kingly style, keeping a large army of his own, and to extend his sphere of influence over an area as large as Shikoku, Japan.

However, as no improved mining technique was introduced, the rich Chiapikou Gold Mine turned into ruins upon the completion of excavation of the uppermost stratum. Han's gold hoard rapidly dwindled, and unable to keep his private army, his influence gradually declined.

A considerable amount of gold was also mined in the Chientao and Jehol districts but as mining in the former district was conducted by Koreans and in the latter by Chinese, no accurate statistics and data are available, and it is difficult to ascertain the scale of operations in figures.

Prior to the Manchurian Incident, the British Government tried to conclude with the Heilungkiang Provincial Government a contract for exploitation of the gold deposits in North Manchuria. Britain is said to have taken this step in order to acquire new gold mining areas in view of the not too bright outlook of gold mining in South Africa, where the deposits are decreasing.

In contrast to the slow progress of the gold mining industry in Manchuria prior to the advent of the new State, due to the employment of primitive mining methods by private interests, marked development is expected in the future, considering the rapid pace at which the industry has advanced within the short span of five years since the inception of Manchoukuo.

The gold output, such only as were gathered at the hands of the Manchuria Gold Mining Company, which, as already mentioned, is the dynamic center of the gold mining industry in Manchuria, and also of the parties bound to the Company by contract, amounted to 550,000 yuan during the half year from June to December, 1934. In the following year 1935, production increased to 3,670,000 yuan. In 1936, up to November, the total returns ran up to 9,000,000 yuan, and might have climbed to 10,000,000 yuan or above before the year was out. The 1937 output is expected to easily exceed 10,000,000 yuan. If such a pace is kept up, it will not be long before the annual total in all Manchuria soars to the 100,000,000 yuan level.

Such handsome results were due fundamentally to controlled economy, but as its direct causes, may be counted the businesslike exploitation of the mines since they were begun, the taking over of mines invested in by the Government, and the introduction of State control over their operations, technical and financial aid rendered the parties, contract-bound, for prospecting experiments and mining work, and technical and managerial information given such parties for guidance and help.

Iron

The greater part of the iron deposits in Manchuria is found in South Manchuria. The ores are generally hematite and contain from 34 to 70 per cent of iron. The bulk of the deposits analyse between 35 to 40 per cent.

A series of Manchurian iron works with primitive equipment but sufficient to meet the small demand for iron in their respective districts in the eastern part of Fengtien Province, were erected in the old days. To-day two mines stand out prominently, Anshan and Penhsihu.

The main iron belts of Manchuria lie along the Mukden-Dairen and Mukden-Antung sections of the S.M.R. system, centring around Anshan and Penhsihu. The Anshan district deposits are the most important. These spread in a semi-circle with a radius of 10 kilometers with Anshan as the center. There stands the greatest iron works in all Manchuria, the Showa Steel Works, which is one of the greatest and most modern equipped steel works in the world. More than 80 per cent of all the iron output in the country is produced there.

The history of the iron works at Anshan is comparatively recent. The iron mine at Anshan was discovered by Mr. Chutaro Kido, then director of the Geological Institute of the South Manchuria Railway Company in 1909, and permission for its exploitation was immediately applied for to the authorities concerned, but was refused.

By the terms of the Sino-Japanese Treaty of May, 1915, however, the Japanese were allowed to take up mining activities in South Manchuria, and the Anshan Iron Ore Development Company was incorporated in March, 1916, under Japanese-Manchurian joint investment, for the purpose of mining the Anshan deposits and supplying them to the Anshan Iron Works, which was simultaneously established by the S.M.R. Company.

For several years the Anshan Iron Works experienced much difficulty owing to the high cost of production, due to the low content of iron in the Anshan deposits. To remedy the situation, a special concentration process for utilizing profitably the lean Anshan ores, invented after painstaking research, was employed from 1926 with satisfactory results, but difficulties in management and finance were still unavoidable.

The outlook, however, became optimistic with the boom created in the heavy industries following the Manchurian Incident, and in 1933 the Showa Steel Works was established as an independent corporation with a Y.100,000,000 capital to take over the entire enterprise of the Anshan Iron Works.

Following its establishment, the Showa Steel Works purchased the rich iron mine at Kungchangling and built a railway line to transport ores from that mine to Anshan. The iron deposits at Kungchangling are estimated at about 380,000,000 tons.

In November, 1935, the Sumitomo corporation of Japan completed at Anshan, a well-equipped factory for producing iron pipes and fittings, with an annual output of 25,000 tons. The products are partly marketed in Manchuria and partly exported.

The annual pig iron production at the Showa Steel Works during 1919-35 was as follows (in tons):

Year	*Amount*	*Year*	*Amount*
1919	32,100	1928	224,400
1920	76,000	1929	210,400
1921	58,100	1930	288,400
1922	67,400	1931	269,400
1923	73,400	1932	300,300
1924	96,000	1933	312,000
1925	89,600	1934	346,700
1926	165,000	1935	303,700
1927	203,400		

The iron works at Penhsihu are built on a smaller scale. Records show that the Penhsihu iron mine was worked by the

Manchurians in a primitive way as early as 1833. Just before the outbreak of the Russo-Japanese War, the Russians had plans on foot for its exploitation, which were, however, frustrated by later events.

In 1914, the Penhsihu Colliery and Iron Works was established as a joint Japanese-Chinese enterprise, but owing to inefficient and complicated management, the company encountered much difficulty, especially after the World War. Following the Manchurian Incident, an extensive reorganization was effected and with the rapid progress of heavy industries during the past few years, the enterprise has been attaining noticeable improvement.

The pig iron output at Penhsihu in recent years was (in tons):

Year	*Amount*	*Year*	*Amount*
1926	51,000	1931	67,100
1927	46,300	1932	83,400
1928	59,600	1933	116,800
1929	77,100	1934	153,700
1930	85,600	1935	151,100

The leading market for Manchurian pig iron is Japan, which imports nearly 75 per cent of the total exported from the country.

Coal is the most important mineral of Manchuria. According to an estimate made by the S.M.R. Geological Institute at the end of 1929, the total deposits in the country amounted to 4,800,000,000 tons. With the restoration of peace and order since the birth of the new State, an extensive survey has been made, and in consequence, a number of new mines has been discovered and opened that to-day, the deposits, it is estimated, amount to 10,000,000,000 tons at least. Many rich coal fields are expected to be found as further surveys are made in future, raising the aggregate deposits still higher.

The demand for Manchurian coal has steadily grown in recent years, showing a noticeable rise especially after the foundation of Manchoukuo, owing to a marked increase in domestic demand. The annual demand during 1926-31 was (in 1,000 tons):

Year	*Amount*	*Year*	*Amount*
1926	7,230	1929	9,960
1927	8,380	1930	9,020
1928	9,300	1931	9,540

The greater part of the above amount was supplied by the world-famous Fushun coal fields whose course of development may be regarded as the history of development of Manchuria's coal mining industry.

Prior to the inception of Manchoukuo, the Chinese authorities regarded Japanese mining operations as Japan's encroachment upon Manchuria, and consequently, recession of Chinese influence, and brought undue pressure to bear upon Japanese mining interests in regions outside of the South Manchuria Railway Zone, finally resulting unavoidably in their complete withdrawal.

Taking advantage of Japan's quiescent attitude, the Chinese Government, immediately preceding the Manchurian Incident, even went the length of lodging a protest against the Japanese shale oil undertaking at Fushun, which China interpreted as a violation of existing treaties.

On the other hand, in order to compete against the Fushun Colliery, the Chinese Government directed its attention to the exploitation of new coal fields and opened a coal mine at Hsian upon the completion of the Mukden-Hailung Railway. It also gave assistance to the Naitzushan Colliery and tried every possible means to expand the market for Chinese-mined coal, not forgetting in the meantime to exert every possible pressure upon the Japanese mines. As a result, the Meiji Colliery, a Japanese mine located in the Hsian coal fields, suffered heavy losses.

Chinese oppression, however, was brought to an end with the advent of the new State, and the Japanese were at last able to conduct mining undertakings without any fear of molestation.

Up to 1932 the demand for Manchurian coal fluctuated, but with the rapid rise of industry and an increase in population following the foundation of Manchoukuo, it has markedly increased, attesting to the growing prosperity of the new State. The demand for each of the years, 1932-36, was as follows (in 1,000 tons):

Year	*Amount*	*Year*	*Amount*
1932	8,830	1935	12,930
1933	10,780	1936	13,420
1934	12,010		

Magnesite

Manchuria is endowed with an abundant supply of magnesite, the total deposits being estimated at several billion tons. In the districts around Tashihchiao, huge deposits of excellent magnesite, amounting to one billion tons, are found.

Magnesite mining in Manchuria is a comparatively recent origin. It dates back to 1913 when native inhabitants brought an incombustible mineral resembling limestone to the South Manchuria Railway Company for chemical analysis. The mineral was found to be none other than magnesite, and the S.M.R., recognizing the need of magnesite as raw material for the future of Japan's light metallic industry, made every effort to acquire magnesite mining districts. Between 1915 and 1921, it managed to acquire thirteen such districts. Since 1921, it has purchased several other districts.

In 1918 the S.M.R. gave the South Manchuria Mining Company the monopoly over the transaction of this mineral and the right to exploit its mining districts. The industry being new, much difficulty was experienced at first, but the true value of magnesite as fire-proof material came to be finally known.

As the industry developed, Chang's régime, with the view to preventing the South Manchuria Mining Company from carrying on the new enterprise, gradually brought pressure to bear upon the Company. Besides cancelling the concessionary rights made under the name of the Anshan Iron Ore Development Company, it exerted so much pressure upon the Chinese who had purchased or leased magnesite mining districts in behalf of the S.M.R. Company, that the industry was almost at a point of collapse just before the Manchurian Incident.

The situation, however, completely changed with the inception of Manchoukuo, and the industry has been making marked progress. In 1935, the magnesite mining districts owned by the S.M.R. were turned over to the Manchuria Mining Development Company to represent its investment in the latter concern in kind.

The magnesite output during 1926-34 was as follows (in tons):

Year	*Amount*	*Year*	*Amount*
1926	10,000	1931	36,085
1927	21,000	1932	55,286
1928	25,450	1933	58,960
1929	31,685	1934	64,270
1930	29,040		

The magnesite mining industry has a bright future since the product is indispensable to Japan's heavy industries as fire-proof material, and magnesite exports to Europe are increasing steadily, due chiefly to the low exchange rate of the yen. When the day for the utilization of Manchurian magnesite as raw material for the manufacture of light metal should come, Japan is looking forward to the assumption of the leading position in the world's light metal manufacturing industry.

Oil Shale

Oil shale covers the main coal seams of the Fushun coal fields to a thickness ranging from 70 to 120 meters. The deposits there are estimated at 5,400,000,000 tons, of which 200,000,000 tons will be dug out in the routine process of operating the open-cut coal mines, and thus this raw material is virtually obtained without involving extra cost. The oil content of Fushun shale varies from one to 14 per cent, averaging round six per cent.

The existence of the stratum of oil shale above that of coal at Fushun was known from about 1909. The S.M.R. Company conducted many experiments for utilizing oil shale but it was not until 1925, when an efficient process for the extraction of petroleum from oil shale by dry distillation was discovered, that the industrialization of shale oil production was made possible. In 1929, the S.M.R. erected an oil distillation plant at Fushun with an outlay of Y.8,500,000, with a capacity of working 1,400,000 tons of oil shale annually.

The following year the Northeastern régime, which had been bringing undue pressure to bear upon practically every Japanese enterprise in Manchuria, lodged a protest with the S.M.R. on the grounds that treaty stipulations do not apply to shale oil, due to the absence of provisions covering this mineral. The S.M.R. countered the protest by stating that it had every right to utilize shale oil inasmuch as it was a by-product of coal mining, but to no avail.

The Manchurian Incident, however, settled the question. The shale oil undertaking has become increasingly important since the advent of Manchoukuo and a plan was under way last year to install eighty 180-ton furnaces at the Fushun plant, which at present has eighty 100-tonners. Its installation had already been greatly expanded during the fiscal year of 1934-35 at an expenditure of five million yen.

In 1930, crude oil production at the Fushun plant reached 28,578 tons, while raw paraffin totalled 10,606 tons. By 1935, crude oil output had increased by more than twofold, as may be seen from the following table giving the annual production of crude oil, raw paraffin and gasoline between 1930 and 1935 (in tons):

Year	*Crude oil*	*Paraffin*	*Gasoline*
1930	28,578	10,606	—
1931	40,161	12,646	—
1932	43,275	13,897	942
1933	54,772	19,066	1,653
1934	37,402	12,048	1,365
1935	65,784	20,000	16,215

Aluminium Shale

In Manchuria, fire clay is found in layers between the strata of coal which belongs to the Permian carboniferous series. Fire clay having a high content of aluminium is used as raw material for the manufacture of aluminium and was discovered by Mr. Murakami, former director of the S.M.R. Geological Institute. He named it aluminium shale.

To commercialize the manufacture of aluminium from aluminium shale, the Japan-Manchoukuo Light Metal Manufacturing Company has been incorporated with a 25,000,000 yuan capital. Its plant, now under construction at Fushun, is expected to commence operations in the near future.

Valuable deposits of aluminium shale are found at Wuhutsui in Fuchou-hsien, near the border of the Kwantung Leased Territory, at Yentai and in the district north of Penhsihu. For the time being, the Fushun plant will continue to obtain its raw material from Yentai.

At present, fire clay is used only for making ceramics and other fire-proof material, such as bricks.

The exploitation of the fire clay deposits at Wuhutsui was started in 1915 jointly by Japanese and Chinese interests, but owing to increasing pressure brought to bear upon the former by Chang's régime, the Japanese rights gradually began to lose influence and effectiveness. The South Manchuria Railway Company, fearing that the Japanese would be ousted from the field if no appropriate steps were taken to cope with the situation, formed the Fuchou Mining Company in 1929 by amalgamating the Japanese interests, with the S.M.R. interests acting as the nucleus, and tried to establish the undisputed recognition of the Japanese rights by the local authorities.

As usual, the Northeastern Government took an indefinite attitude and deliberately exerted added pressure upon the new company, but the advent of Manchoukuo in the wake of the Manchurian Incident resulted in uninterrupted Japanese exploitation.

The Yentai fire clay deposits are exploited by the Showa Steel Works, but since production there does not amount to much, the output from the Fuchou district between 1926 and 1935 will only be given (in tons):

Year	*Amount*	*Year*	*Amount*
1926	34,827	1931	34,744
1927	38,352	1932	51,706
1928	48,989	1933	112,069
1929	62,605	1934	145,315
1930	48,164	1935	190,713

Manchurian fire clay is chiefly exported to Japan.

Petroleum

Since Japan is sorely in need of mineral oil resources, she conducted investigations in Manchuria following the Russo-Japanese War, but it was generally concluded by geologists that there was no oil in the country.

Before the Manchurian Incident, the South Manchuria Railway Company, hearing that oil was found to some extent in the district near Chalainoerh and another locality on the former North Manchuria Railway, took every pains to locate the reported oil fields, but came to the conclusion that the Chalainoerh district alone was worth further surveying.

After the Manchurian Incident the diamond drilling system was employed in the Chalainoerh district, with no appreciable results. Since the establishment of the Manchuria Petroleum Company, the oil boring method has been used, but so far no oil has been struck.

Steatite

Steatite is found in large quantities near Taling, Tashihchiao and Haicheng. Its output is steadily mounting, due to increasing demand in Japan resulting from the rapid expansion of the paper manufacturing and spinning industries there.

Though a profitable enterprise, steatite mining did not develop into a major industry at first since it was subjected to haphazard and hindering conditions. Consequently, these undesirable conditions gave rise to the emergence of numerous small Japanese-Chinese joint enterprises, which incurred financing difficulties and competitive deprivation of employed miners. The activities of these companies were hindered further by the local officials who, in order to fatten their coffers, began either to confiscate their mining lands by illegal means or to bring undue pressure to bear upon them. With these confiscated districts as foundation, the Taling Steatite Company was established by the Northeastern Mining Bureau prior to the Manchurian Incident, and it soon came to take a controlling hand over the steatite mining industry.

Following the birth of Manchoukuo, the Minister of Industry, with the view to unifying the steatite industry in the country, caused the establishment of the Manchuria Steatite Company, with which was merged all the small mining companies, and entrusted this new concern with the exploitation of the rich Taling steatite deposits. Since then the industry has made marked progress. The output of steatite between 1921 and 1932, the bulk of which was exported to Japan, was as follows (in tons):

Year	*Amount*	*Year*	*Amount*
1921	10,728	1928	35,000
1922	12,787	1929	40,000
1923	13,890	1930	25,726
1925	31,516	1931	42,890
1926	34,906	1932	44,316
1927	23,000		

Copper

Well known copper mines in Manchuria are located at Malukow, in Chientao Province, and at Panling, on the Antung-Mukden line, but the operation of these is still discontinued at the present, due to the low price of copper. The reopening of these mines is highly desirable in view of the projected establishment of a copper refinery in Mukden and Japan's large importation of this mineral from abroad.

Lead

In contrast to the scarcity of lead in Japan, Manchuria has large deposits of this mineral. The largest mine in operation at present is Yangchiachangtzu, near Chinchou, which is owned jointly by the S.M.R. and other Japanese interests.

Limestone

Another abundant Manchurian mineral is limestone. The largest deposits are located at Choushuitzu, Huolien-chai and Penhsihu. The Choushuitzu limestone is used extensively in cement and glass making at the factories located nearby. The output from Penhsihu and Huolienchai is utilized at the iron works of Penhsihu and Anshan. The combined limestone output annually ranged from about 450,000 to 700,000 tons in recent years. Manchurian limestone is rarely found in pure form, but its total deposits are very great.

Sulphuric Iron

Sulphuric iron ore is found in many parts of the country, but so far no large mines have been discovered. At Linchiatai, near Tungyuanpu on the Mukden-Antung line, and at Yangmukou, there are sulphuric iron mines which are still being worked. The yield of these mines is supplied to the Sulphuric Acid Plant of the Fushun Colliery

At the Penhsihu, Niuhsintai and Yentai coal fields, sulphuric iron ore is found in the coal seams, and is mined together with the coal.

Manganese

Manganese is found at Heisunglin and at Hsiaohuangchi, where the deposits are of good quality but small, and are now being mined.

Trackless Train in Manchuria

Hauler with Engine, followed by Five Trailers, Tested to Entire Satisfaction of General Directorate in Run from Mukden to Hsinking

By GEO WHITE

AFTER repeated trial runs of the trackless train had satisfied the engineers of the General Directorate of Railways, the final long-distance test run between Mukden and Hsinking was accomplished at the end of January.

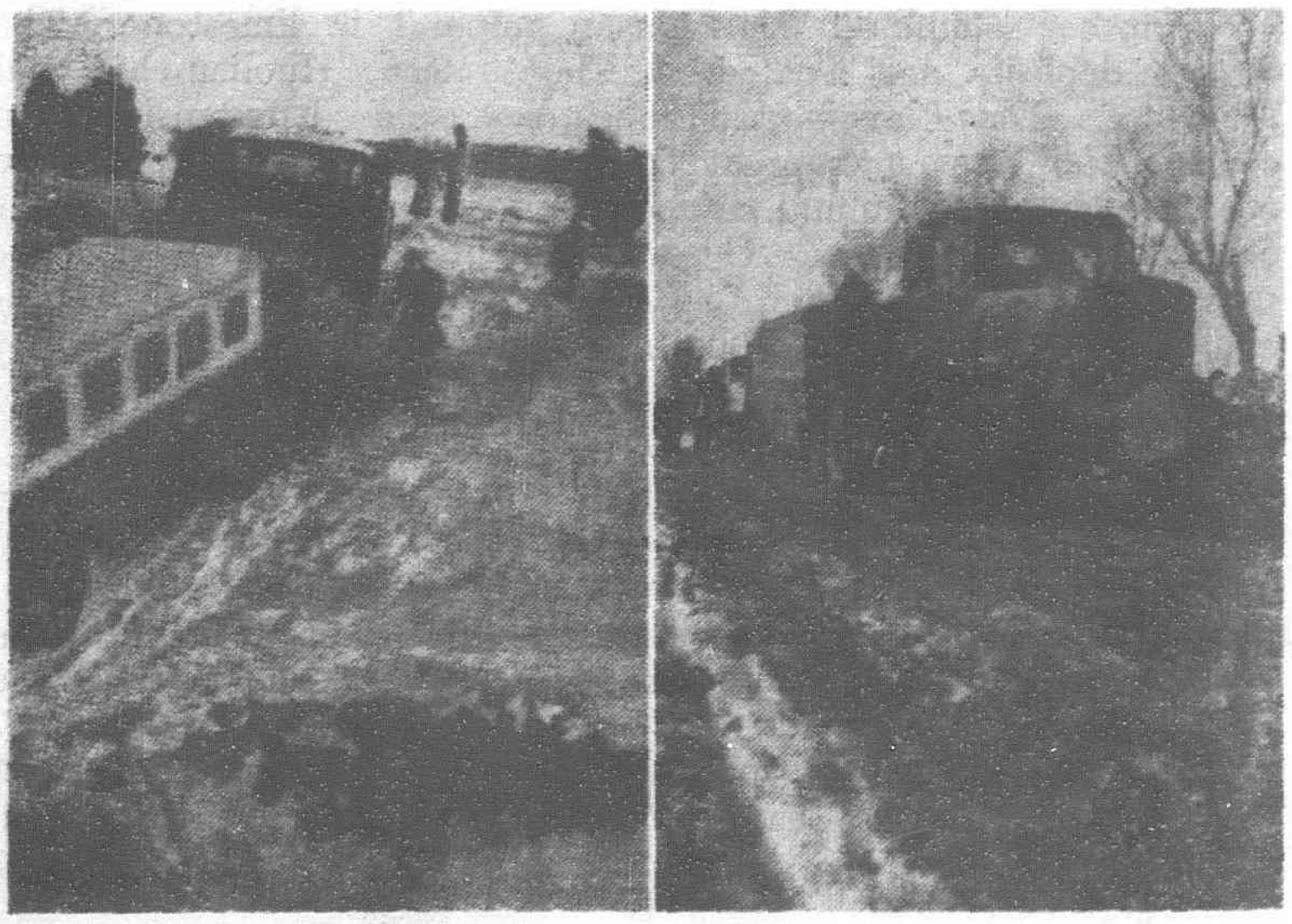
The trackless train consists of a hauler of German construction, Buessing Nag, imported towards the end of last year. The 145-Diesel engine, equipped with ante-chambers and glow-plugs, allows easy starting at any temperature. The four-wheel driving arrangement, rear and front wheels, enables a much higher adhesive power than a normal rear-driven car, which was proved on many occasions during the drive to Hsinking. Then follow five trailers constructed from old Chevrolet chassis, which are coupled by special mechanism to the hauler, that permits the whole train to run on the same rut at any curve. The total length of the train is about 35 meters. It can develop a maximum speed of about 25 kmp.h., but it usually runs at an average speed of about 20 kmp.h, mainly for safety sake. However, the hauler, which is equipped with overgear, reaches a speed of 60 kmp.h. As to the length of the train, which is larger than that adopted in other countries, it might be mentioned that trains of such length could be advantageously used in the vast Manchurian plains without disturbing normal traffic conditions.

Mass transportation by road trains in North Manchuria and other districts having no railway connections will be of great benefit to the general development of remote regions, and the General Directorate of Railways looks forward to a bright future for this system of transportation.

Many Japanese and Manchurians were surprised on a cold January morning by the powerful, deep-roaring Diesel train passing through the streets of Mukden and having big posters " State Railways' Trackless Train" and " Long Distance Test Run, Mukden-Hsinking," placed on both sides of the second and fourth trailers.

Safe Conveyance

The train reached at good speed the suburbs of the city, where already the first hills and sandy narrow lanes compelled the driver to lower the speed. The test, however, was not carried out for the purpose of speed, but for safety and practicability of this new means of transportation. No bridge was crossed before having been tested of capacity, and many times the train had to pass river banks and drive through open fields in order to avoid weak bridges or narrow passes. Again and again signals of " stop " and " go " were given by red and green flags.



(Right) The trackless train is shown climbing a steep gradient on the way to Kunchuling, while on the left it is pictured on the road to Hsinking

The passengers, among whom were outstanding engineers of the General Directorate of Railways and the Dowa Automobile and Machine Company, were in high spirits during the whole trip, in spite of the severe cold (as the temperature was below -30 C) and fumes of charcoal from " hibachi," with which the passenger waggon was heated, as a special heating system had not yet been installed in the train at that time.

Gradients up to 20° on rough terrain were conquered without difficulty by the powerful hauler. The first part of the run up to Tiehling was accomplished to the full satisfaction of all pioneer passengers. The second part of the trip to Ssupingkai was the most difficult as far as orientation was concerned, and the train had to make many cross-country drives and often to return to its starting-point in order to find the right road passable for the train.

The arrival of the trackless train in Hsinking, where it is being inspected by officers of the Kwantung Army

The third part was also not easy to be conquered, as just before Kungchuling the road along which the train was moving suddenly terminated, forcing the driver to pass over rough kaoliang fields for miles before reaching the town early in the morning after a whole night's journey. Still, on the same day, after a brief stop for a couple of hours, the train left Kungchuling for Hsinking, where it arrived about noon, being welcomed by many G.D.R. officials.

Minor Accidents

After a stop for an hour in front of the Kwantung Army Headquarters, during which explanations were given to military experts, the trackless train proceeded to the S.M.R. building in front of the Hsinking station, where the vice-chief of the Automobile Department of State Railways, under whose direction the whole test run was carried out, gave a brief account of the trial to S.M.R. officials.

A number of minor accidents of course happened during the trip. Many country horses, as well as farmers, were frightened by the roaring of the motor and by the appearance of the huge hauler, which they had never seen before. At a steep gradient one of the tyre chains broke. Some difficulties arose when the oil became stiff on account of severe cold while camping outside of Ssupingkai. But these minor things had no important bearing upon the pronounced success of the trial run, which was acknowledged by all concerned.

(Continued on page 157)

Manila's New Airport*

Most recent addition to the progressive growth of the Philippine Islands is to be found at the new airport constructed by the Nielson Airport, Inc., located at San Pedro, Makati, Rizal, a 10-minute drive from the center of Manila. This airport is one of the finest in the Far East and is designed in accordance with the air commerce regulations and specifications of the United States.

The field has two paved runways so placed as to make it possible to land and take off into the direction of the wind. The runways are over 3,000 feet long and 100 feet wide, crossing each other at about a 60-degree angle. Provision has been made for a third runway in anticipation of future extensive airport activity. Landings can be made in any weather and the field is now being used by U.S. and Philippine Army planes for emergency landings. Also the INAEC's Sikorsky planes have made the field their Manila headquarters. The runways are of special asphalt construction. Their foundations are made up of large adobe rocks locally known as "Escombro," packed together from a depth of approximately 14 inches to three feet. Over this was placed a layer of crushed stone two inches thick, another layer consisting of one-inch broken stone, and finally a layer of screenings. The surface of the runways was then finished with Bitumuls, a trade name for emulsified asphalt. Runways have been made to withstand greater pressure than the ordinary asphalted roads. Successful tests have been made with 12-ton narrow-tread trucks, and it is estimated that they can withstand a weight of around 15 tons, which is a much greater weight than the largest plane in the P.I.

First-class Philippine hardwoods were used for the posts, rigging and truss work on the very modern hangar. The roof trusses, which are 120 feet long and 25 feet high, are made of 14-inch wooden beams four inches thick, bolted together to give the length and strength required of the trusses. The hangar was built to provide shelter to planes in any kind of weather. Specially fabricated steel doors at each end of the hangar have a maximum width of 120 feet and are of the eight-leaf type, rolling on rails for easy opening and closing. Officials of the KNILM Airways, which recently made a chartered trip from Java to the Philippines, expressed themselves as satisfied with the landing facilities to be found at the Nielson Airport and are certain that they will extend their regular lines from Java to the Islands when permission is granted by United States officials at Washington.

Night flying will be provided for in the near future. Electrical, telephone and radio wiring are brought in through conduits a foot underground in order to avoid unnecessary surface obstruction. Underground wiring for the elaborate flood lighting system to be used for landings and take-offs at night is being installed, and most of the equipment is now in the Phillipines. Radio control systems will be one of the features of the airport. The radio control room in the depot operates by remote control from a radio dispatch and receiving station housed in its own building on the south side of the field. This station will be equipped with the most modern equipment. All orders to incoming or outgoing planes will be given by radio as well as visual signals.

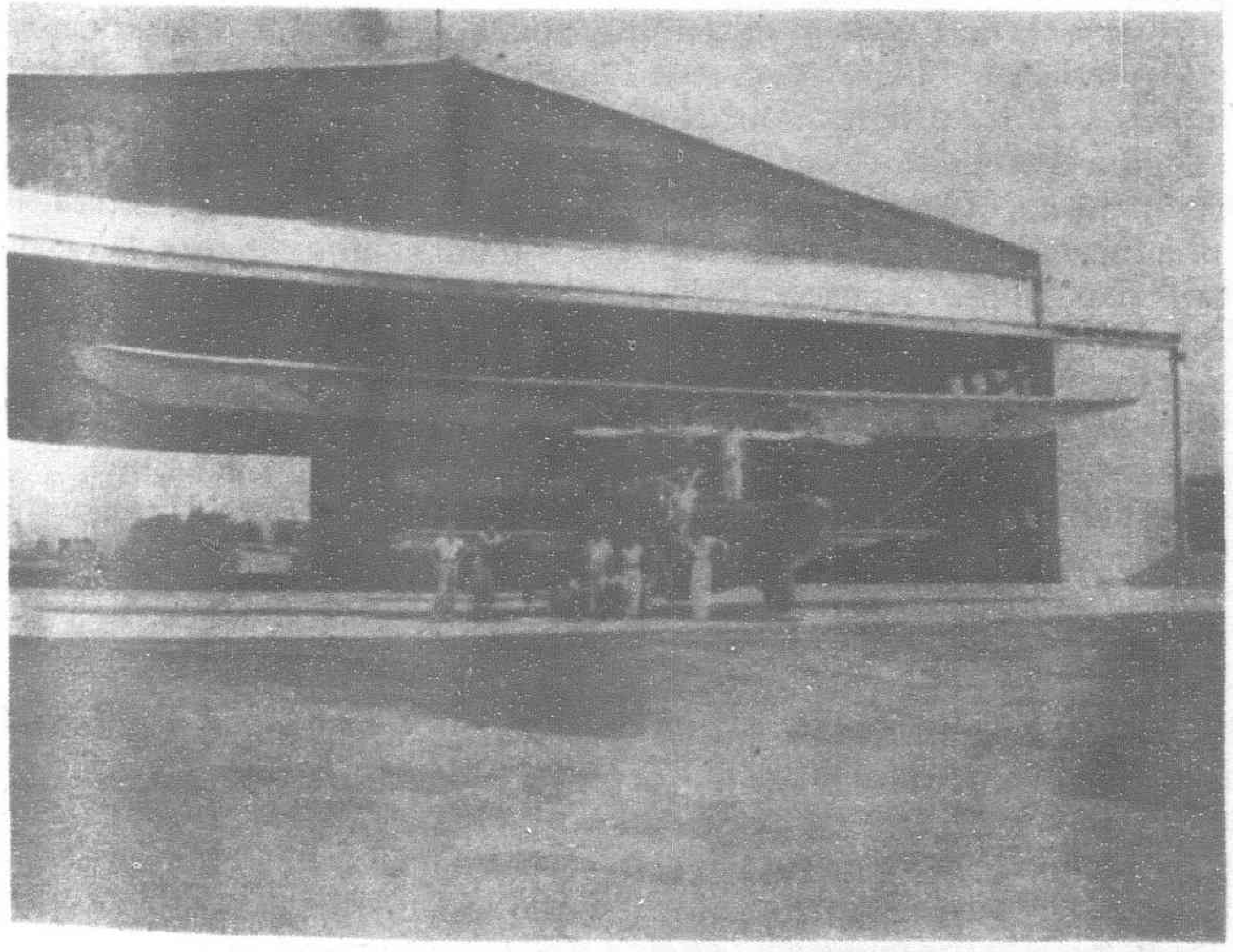


Photo Courtesy Nielson Airport, Inc.

A Sikorsky Amphibian in front of hangar at Nielson Airport. This is one of the most versatile aircraft used in the Philippines.

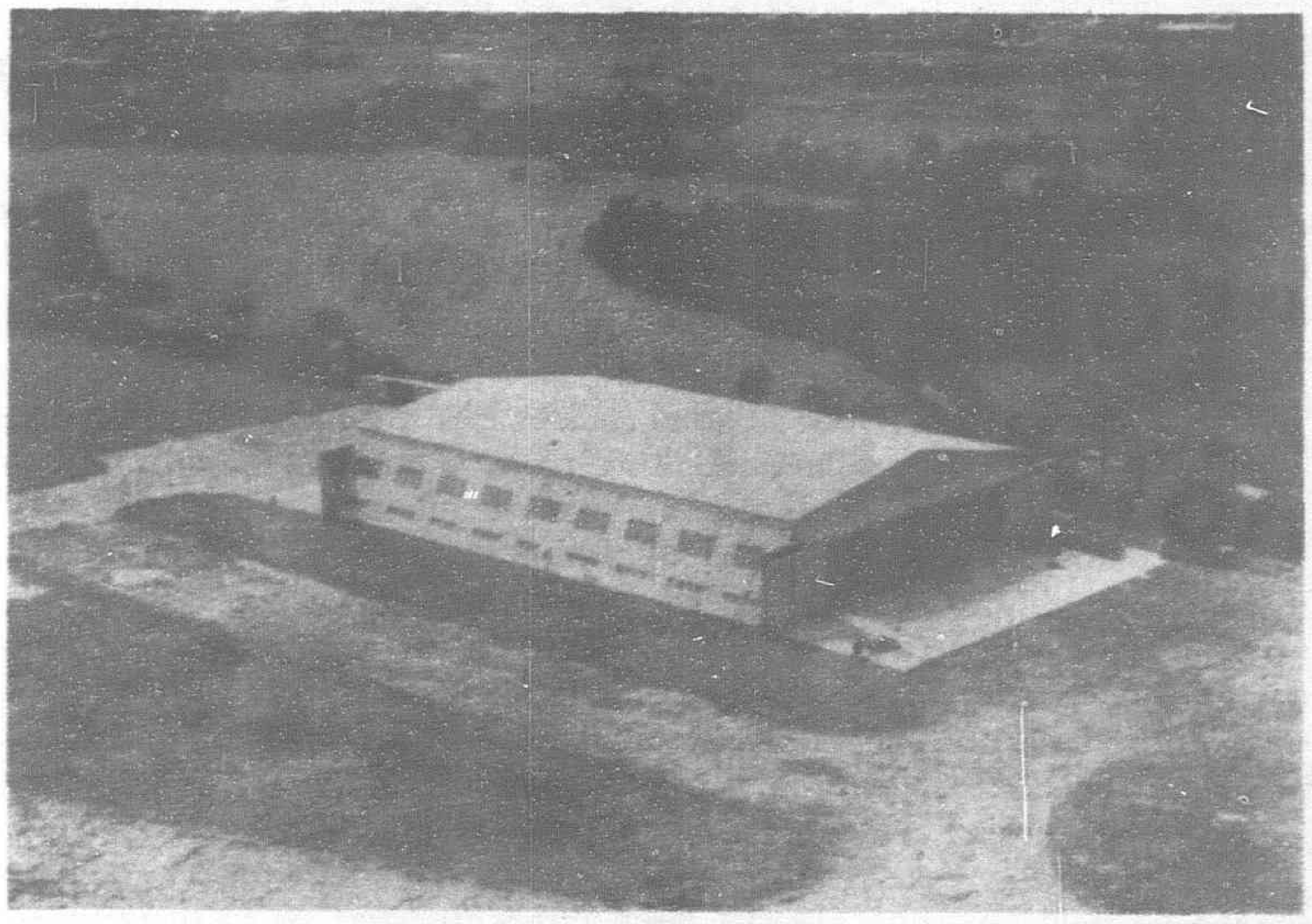


Photo Courtesy Nielson Airport, Inc.

One of the largest Airplane Hangars in the Far East. Aerial view of the huge building where complete facilities are to be had for servicing aircraft.

The new home of the American Far Eastern School of Aviation, quartered at the Nielson Airport, also have modern and spacious buildings containing lecture and class rooms. The right wing of the building contains the shops, where students receive actual training in the building and repairing of engines; a tool room, ingition, airplane construction, welding and other departments necessary for teaching every branch of aviation. It is in this part of the school that the students receive a thorough training in maintenance and assembly work. Construction of the airport was under the direction of Berton A. Barrett, engineer, who has had wide experience in this field. Among other engineering achievements, Mr. Barrett was in charge of the China National Airways airport at Shanghai; was with the Pan-American Airways, when he built hangars and buildings at Macao; and also constructed the huge reservoir at Macao for the Portuguese Government. From there Mr. Barrett went to Cavite to put in the Pan-American port where the *Clipper* ships now have their base.

In conclusion, we must pay tribute to the far-sighted, courageous business leaders who have made possible this remarkable achievement in aviation progress for the benefit of the advancement of transportation progress in the Philippines.

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*From *The Sugar News Supplement.*

Chingpo Power Project Revised

An extensive alternation of the Manchoukuo Government's project for the establishment of a gigantic State-owned hydroelectric power-house near the Chingpo Lake in Mutankiang Province, is recommended in an official report just submitted by the party of experts which was recently dispatched to the spot to conduct further investigations into the project. The original construction cost of 13,200,000 yuan has risen to 20 million yuan, due to an increase in the estimates for the purchase of machinery for carrying out the project. An effort will be made to economize in the purchase of such machinery by using more manpower. The above report also recommends the erection of a gigantic concrete dam to raise the level of water in the lake, instead of a sand dam as planned in the original project. If the bed of the lake is found too hard for the establishment of this concrete dam, the report declares, the plan to dam the lake should be abandoned.

Practical Exploration of all Eastern Mindanao Promising

By EARLE W. BEDFORD, Consulting Mining and Metallurgical Engineer: National City Bank Building, Manila, in the American Chamber of Commerce Journal

NOTE.—*Mr. Bedford prepared the paper that follows at the special request of the* JOURNAL, *whose desire is to invite scientific attention to the unexplored potentialities of a new Philippine mining field, in the region of which Mr. Bedford writes with the background of several years' experience.*—ED.

* * *

THERE are but few regions in the Philippines mineral realm as remotely situated, and from a mining standpoint as unjustifiably isolated, as that which has been made the subject of this paper. A minor number of Americans and Filipinos have penetrated this relatively virgin mineral frontier, but having ordinarily traveled alone, or in small parties, and without particular financial support, technical ability, or organization, effort has often resulted adversely to the dreams of the adventurer, as also against the merit of the Mindanao Diuata country as a potential mining area.

Exploratory prospecting in the region—particularly in the southerly portion—has always been characterized as hazardous of accomplishment, due, probably, to a somewhat erroneous conception of the wild tribes inhabiting the domain, to fear of fevers prevalent in certain areas, to the impression of inaccessibility beyond the fringe of civilization, and to general inconveniences operating to thwart individual enterprise which would not apply under conditions of organized expedition.

It is not my purpose to imply that the region has been wholly neglected.

Since 1934 until the present time there has been some activity localized in the coastal margin of northeastern Mindanao, and such activity is, in many instances, reacting favorably toward the establishment of economic featured mining properties. These are notably East Mindanao Mining Company, Mabuhay Mother Lode, Surigao Consolidated, North Mindanao Mining Company, Mapaso, Tambis (lode and placer), and other ventures in lesser stages of development. Obviously there is a degree of significance relating to the potential possibilities of the vast unexplored terrane southerly of the developments alluded to, especially as such mines, and regional prospective developments, are localized within easy accessibility from Surigao, and to the obvious conclusion that their discovery and development has not been accompanied by particular difficulty. Also of importance is the marked similarity—as will be shown—of geologic structures predominating throughout at least the northerly extent of the Diuata cordillera.

It therefore would appear as if the anticipation of favorable southerly expansion of mining development is a matter of achievement largely predicated upon systematic and intelligently organized exploration parties.

Particularly am I influenced to this opinion inasmuch as in my reconnaissance expeditions along numerous streams tributary to the upper Agusan river it is notable that gold, in varying tenor, may be panned from the channels. This feature is also true of gravels common to the extensive drainage system emptying to the Pacific from the east-facing slope of these mountains.

In the preparation of this paper it is my desire to direct attention to the salient features of the general eastern Mindanao coastal cordillera such as may be deemed contributory to conditions of possible economic mineral value, and in this relation—based upon my personal observations—I am presenting, in some degree of detail, such factors as may favorably influence the suggestion of an organized private—if not governmental—expedition undertaking the actual field determination of the geology and indications of mineral resources.

Location

The scope of this paper takes primary consideration of potential mineral resource possibilities confined to the entire Diuata cordillera fronting the east coast of Mindanao; however, deliberation upon supplies sources, transportation facilities and communication points, is of supplementary importance to the whole element of success in projecting any expeditionary venture having for its ends the adequate investigations necessary to a comprehensive estimation of desirable conditions within the Diuata, that I have deemed it advisable also to include the Agusan country comprising the river and its tributaries such as flow from the interior of those mountains; the Lake Mainit regions of the north; the east coastal margin of Mindanao, and much of the area east of Davao gulf. Thus, by reference to any suitable map of Mindanao, the reader may comprehend the vast extent of the area above delineated.

It will be noted the Diuata cordillera is a north-south trending system separating Surigao and Agusan Provinces with the boundary along the crest of the range northerly; whilst to the south, in Davao province, the cordillera is located east of the Agusan's sources and may be followed south along the peninsula forming the east land barrier of Davao gulf. The cordillera is a prominent feature of this headland ending at Cape St. Agustin. This implies consideration of an area extending from north to south a meandering distance exceeding four hundred kilometers having a width averaging fifty kilometers between the Agusan basin and the Pacific. Enclosed within the confines of the area, and with particular reference to the upland slopes of the cordillera on both the Agusan and Pacific flanks of the crest, exists from the standpoint of mineral exploration a country embracing in excess of 15,000 square kilometers subject to, and meriting, intensive investigation.

Topography

It has been indicated that the Diuata generally parallels the east, or Pacific coast of Mindanao. The crest of the range rises to elevations averaging approximately 700 meters above sea level. However, along the range in central Davao extending south into the St. Agustin peninsula elevations exceeding 1,500 meters are quite common, while outstanding peaks are noted to exceed 2,250 meters. In the crest line southerly of Lake Mainit elevations ranging between 1,500 meters and 1,800 meters occur along the provincial boundary.

With some exceptions the coastal slopes are more precipitous than those declining toward the Agusan basin. This feature is not as pronounced regional to the watersheds of the Cantilan, Tago, Hubo, and Hinatuan, rivers in lower Surigao province, as also in the region of Baganga, Davao province, where the coastal relief is somewhat undulating above the horizon of the land rise near the shores. From Point Bilaa, the northernmost headland of Mindanao toward the outlet of the Asiga river, the Diuata slopes are precipitous. The Asiga, draining the Lake Mainit region, meanders within a broad valley extending southerly of the lake which is surrounded by high steep-sided mountains. East of Cabadbaran and the Butuan delta land the rise is gradual until the base of the range is reached. Continuing south to the source of the Gibong river the cordillera is characterized by high elevations and extremely precipitous slopes. Southerly of this point, and extending throughout the upper Agusan border, slopes are more gradual, being regularly indented by streams flowing to their confluence with the Agusan. In Davao, south of the great Agusan swamps, this river system is confined to narrower valleys, leading to deep canyons penetrating a widespread and little known mountainous area.

North of the swamps the Agusan basin is broad and is an almost impenetrable jungle. It is bordered on the east by a terrane of rolling hill country gradually rising to the Gibong divide, which in this region has a north-south trend generally paralleling the Diuata.

The Agusan drains a vast watershed; being one of the largest rivers in the Archipelago it serves as a medium of transportation into the interior jungle reaches. This may be accomplished primarily by steamer to Butuan—the head of navigation for larger vessels. Proceeding upstream from Butuan it is necessary to use small power boats which, during flood season, and in the hands of canny native crews, may be taken into the dismally expansive crocodile-infested swamp area of the upper Agusan country. One of the largest tributaries is the Gibong, which has its confluence with the trunk stream near the northerly border of the swamp country, and is also navigable, at times, to such outposts as Ebro and Borbon, or to Rosario on the Sulibao river. During the dry season, however, these points are satisfactorily reached by baroto—the native dugout of northern Mindanao. Should one feel equal to tortuous travel through mud and water—a sort of perpetual carabao wallow—and be more or less contemptuous of leeches, nic-nics, mosquitoes and flies, he may follow short-cut Manobo trails; which, in any event, are the ultimate necessity when the rivers' facilities are left behind.

The entire area is densely mantled with every species of tropical vegetation common to the southerly portion of the archipelago. Timber is of all groups, and were it not for transportation problems this virgin forest would undoubtedly become the greatest lumbering resource in the Philippines. Undergrowth is almost impenetrable; being an entanglement of all manner of shrubs, vines, thorn brambles, rattan, and air plants—among the latter are many rare species of orchids. A trail slashed to-day will ordinarily be unrecognizable within a week if not in continuous use.

Diuata Area Geology

The Diuata formations, excepting in relation to mining developments localized in the northerly portion of Surigao, have been the subject of geologic study by comparatively few engineers, and such information as has been developed is only that resulting of cursory observations made during hurried reconnaissances into the most accessible regions. The knowledge so derived is of fundamental value in the anticipation that conditions will obtain favorable to gold and other mineralization, and obviously any concerted expeditionary prospecting program for the area under discussion should employ capable field geologists as a necessary complement of the organization.

During the course of a number of trips into the region—some of which were made via the Agusan river route, and others from the Mindanao east coast over mountain passes leading to the upper Agusan area—the opportunity has been afforded me to observe the geologic features exposed in some degree at diverse points. These I have correlated with structural geology noted as the result of many examinations made in the more northerly portion of Surigao, where considerable mining activity is now in progress. In this relation I shall endeavor to describe the salient structural features characterizing the Diuata.

The basal structure of eastern Mindanao is that which may be assumed to be representative of the foundation rock series of the entire archipelago as also, in all probability, a vast expanse of submarine area. Delineation of this is, for the purposes of this paper, of no relative importance. However, I should point out that the basal series of magmatic rocks may be essentially identified as of archean stratigraphy and upon which, during paleozoic and possibly early mesozoic time—beneath the seas of those eras—came to repose, consolidation, and normal metamorphism; the vast accumulations of alluvial débris resultant of erosion by immense rivers then flowing out of pre-tertiary Asia; thus the visualization of archean magmatics superimposed by compressed residual sedimentaries which formed the ancient submarine horizons existing prior to the rearing above the sea of the land mass of which the Philippine archipelago is now representative.

There is no basis of theory leading to conclusions that an extensive land mass once occupied the area geographically known as the China sea. It is more logical to assume that the archipelago is, and has been, an independent element of mountain and land mass development off-shore from pre-tertiary continental Asia, although some former land relations may have existed as a connection with the ancient Borneo-Celebes area, but this appears to have been of relatively short duration in the scope of time, since fauna development has not been similarly influenced.

The Diuata, as is also believed true of other cordillera characterizing the Philippines, are the orogenic expression of a grand scale series of igneous intrusions along tectonic weakness planes which, it is quite reasonable to assume, were segmentally developed in the more ancient basal formations. Such planes of weakness probably originated, and were contributed to, by adjustments of stress from the long accumulating weight of the paleozoic and early mesozoic sedimentaries. These were folded to great anticlinal structures over magmas made molten due to temperatures raised by pressure and other geodynamic conditions commensurate with the revolutionary events leading up to the tertiary, and continuing, alternately, during that era.

The conditions above recounted ultimately reared the anticlinal structures above the sea as vast longitudinal batholiths of igneous formation flanked by the upthrust remnants of the folded older rocks. These structures reached elevations difficult to determine; they underwent periods of subsidence and re-elevation; they have contributed to ages of erosion and have become superficially disintegrated, and yet they remain lofty monuments to their original intrusion and upheaval.

The earliest Diuata aspect had no similarity to its present day appearance of forest mantled crests and undulating slopes. Instead, this area was a great steaming rock mass, devoid of all vegetation or other forms of higher life, and stood above the sea as a great elongated island. The place now known as the Agusan valley was a shallow inland sea perhaps much the same as the waters between the islands of Cebu and Negros. Thus began the sequences down through the elapse of a probable hundred million years which have brought about the final terrane of Eastern Mindanao as we find it to-day.

There have been at least three grand scale intrusive phases effecting the structural development of the Diuata. The original intrusion forming the core of the cordillera is chiefly composed of gabbroid rocks which, where fresh, are pyroxenaceous to peridotitic with weathering to serpentine a pronounced feature common to the outer margins. In the range separating Lake Mainit from Butuan bay I have noted marbleized ancient limestones flanking a chloritic schist, and in such attitude with the igneous core that one may conclude the metamorphosed sedimentary to be the leg of a now truncated anticline upheaved from early mesozoic sea bottom strata. Similar conditions are noted elsewhere along the Agusan-facing flank of the Diuata, but these exposures should not be confused with the limestone strata resultant of deposition during periods of subsidence which have prevailed over long periods of Diuata history.

A secondary peridotitic intrusion rending long fault planes paralleling the range is responsible for a considerable expanse of serpentine fronting the lower Surigao coastal area, as also the rearing of Dinagat, Bukas, and a myriad of lesser islands. This revolution undoubtedly had some relation to the successive periods of subsidence and elevation effecting the area, as also have the final intrusive disturbances which were andesitic. These latter occurrences are smaller in extent than are the primary intrusives, and appear to have been influenced by tertiary disruptions localized near Lake Mainit. Andesite and porphyrytic andesite structures may be followed northerly of Mainit, through Placer, into the southern extremity of Dinagat Island. Lacoliths of andesitic formation occur with great regularity southerly of Lake Mainit; along the Gibong headwaters, and at least as far south as San Isidro and Bislig; and I have noted numerous necks in various places along the east coast. It is noted that in all the more important mining operations of the Surigao area the better appearing prospects, as also all streams having auriferous gravels, are either in the andesite structure, or have some direct relation with influences traceable to the occurrence of that formation. This implies strict attention should be given similar structures southerly of the Surigao center of interest.

Mineralization is normally by lateral secretion of values to zones of fissuring; to quartz filled veins and veinlets; and in isolated instances values have been found in connection with leached, once pyritiferous, limestone beds—being an ore probably having its genesis by hydro-thermal processes of deposition.

To conclude a description of the geologic history of the Diuata-Agusan region, after the culmination of the tertiary intrusive disturbances, one considers erosion and consequent filling of inland sea depressions. The intensely shattered superficial horizons of the ancient Diuata were easily susceptible to the highly erosive action of the more torrential streams flowing during that age. Great delta deposits, now recognized as remnant terraces of poorly consolidated gravel made up of an aggregate of peridotite, diorite, serpentine, andesite and quartz, were deposited marginal to the sea then occupying the present Agusan-Davao basins. It is apparent that during all this time the Diuata underwent various changes due to relatively uninterrupted dynamic disturbances such as a series of regional subsidences and re-elevations, normal adjustments of stress, fissuring with minor secondary intrusions prevalent along the flanks, metamorphosis, and contributary ore mineralization in many locales favorable to such deposits.

Of probable last sequence in this long train of events has been a gradual elevation of the area. Thus were raised to high horizons the remnant limestone beds, and more ancient strata, commonly noted high above the sea along the east Mindanao coastal slopes as also on the west flank of the Diuata. Similar formations remain marginal to the Agusan valley uplands.

The long period of quiescence since has been characterized by surface disintegration, great slides, and erosion of the mountainous area which has extended to the final filling of the inland sea, or gulf, then occupying the Agusan valley, as also other less extensive depressions such as the valleys of the Surigao, Cantilan, Hinatuan, and Baganga rivers emptying to the sea along the east Mindanao coast. The upper Agusan swamps, Lake Mainit, and similar areas, together with the southerly fringe of Butuan bay, are present-day examples of the gradual encroachment of land areas by processes of erosion, transportation, and filling with products of disintegration from the upland reaches. That in consequence of this vast horizons of enriched vein stock works have been planed off and entrained with the migrating gravels during time, from the tertiary to the present, is mutely evidenced by the auriferous gravels common to almost all the streams originating in the Diuata and flowing either to the Agusan or the Pacific.

The occurrence of gold, in minute quantity, is noted in the ancient shore line gravel terraces, and by secondary concentration such modern streams as have eroded their channels to the basal contact of the terraces have in some instances become enriched to the point of economic importance. The occurrence of gold in these more ancient terrace gravels is definitely indicative of vein enrichment as early, at least, as the late tertiary and that the enrichment is deep seated is evidenced by the general distribution of gold in modern stream gravels. Thus is implied the potentiality of the Diuata region as a new factor in Philippines gold production predicated upon careful geologic field study supported by able prospectors with a keen sense of ore relations.

The foregoing description of the geologic development in the Diuata-Agusan region has been recounted in sufficient narrative for the purposes of this paper. Of importance to the subject are the economic features of the area—especially as may be developed from observable and correlated geologic aspects; the scope of study relating to which, it is admitted, has not been of particular extent.

Organization

I believe it to be an eventuality that a materially intensified mining interest will trend southerly of the Surigao-Agusan center of present activity, and I am able to forecast a strong element of failure for such ventures as are not adequately financed and staffed with capable technical and practical ability. I commit myself advisedly to the foregoing statement on the one premise that, with luck and perseverance, lone prospectors have often discovered the outcrops of meritorious mining claims, but in the region under consideration such lone, or small party, pioneering is accompanied by many harassing features not ordinarily experienced in the less remote mining province.

It has long been an ideal of the writer that the Diuata should be expeditiously explored for the benefit of Philippine mineral resources expansion, and under conditions minimizing possibilities of an expeditionary failure. This logically presupposes organization and execution of the effort by the Commonwealth contingent upon ample funds being made available to it. There are undoubtedly a number of competent Filipino junior engineers available for appointment to work under the direction of a corps of field geologists, reconnaissance topographers, and engineers, necessary to a comprehensive regional examination of this relatively neglected terrane.

Mining enterprises operating in the several recognized mining districts elsewhere in the Islands have collectively developed a geologic estimation local to those areas, much of which has been correlated among the operators' engineers and the Bureau of Mines investigators. This has been of sufficient scope that a knowledge of localized geology is available mainly to those directly concerned, and to a lesser degree the technical, or scientific, interest of others. It is of becoming importance, in the broadening scope of Philippine mining, that such remote areas as the mineralogically potential Diuata be the focus of early geologic reconnaissance, and the results thereof together with all contributary data relating to the region be the subjects of a series of preliminary monographs which may later be re-edited. The benefits of such data are obvious in facilitating the penetration of the area, and in expediting mineral search concentrated upon the most favorable structures which may have been previously delineated by field research.

Private capital and organization in the event of the inability of the Bureau of Mines to do so, may—with justifiable mercenary expectations—finance such an exploration for its own ends. This implies that the field parties will be manned to meet the requirements of locating claims where structural, or mineralization, conditions are of determined merit.

The provisions of the new Commonwealth laws pertaining to lease entry in the mineral domain are inimical to any claim appropriation which may possibly be construed as extending to the monopolistic control of mining claim groups throughout a vast area such as is under discussion; however, it is within the scope of legality that the exploration be syndicated and financed as a centrally administered co-operative project, and under such procedure as may make feasible the legal entry upon as many claim groups as may be located for a corresponding number of syndicate, or corporate, entities; the whole scope of these considerations being subject to legal definition contributing to the formulation of plans for the enterprise—particularly as pertains to the benefits which logically should accrue to the initiators and financial supporters whose interest might make possible an earlier development of a new Philippine mining area.

A technical and operative staff constituting a general field party for a comprehensive investigation of Diuata geologic aspects, and mineral resources, indicates a competent business executive primarily. His functions should extend to the selection of an attorney, an accountant, and such other assistance as will contribute to the financial aspects of the expedition. The venture will be a futile effort without careful selection, as chiefs of parties, capable field geologists, mining engineers, and surveyors, who in turn will direct the activities of junior engineers, field draftsmen, their assistants, field office stenographers, and such other contributing labor as would be detailed for the ambitions of the entire program.

A field hospital, supplementing the provincial hospital at Butuan, is an adjunct to this enterprise. This should be in charge of a doctor agreeable to the imposed jungle conditions. One or more male nurses should also be provided.

The matter of detailed staff organization is subject to due consideration of all the factors which may importantly contribute to the success, or failure, of the aims upon which the expedition would be formulated and executed. There certainly is no place for weaklings in the upper Agusan country, or along the Diuata flanks. Neither can there be tolerated individuals in the organization having such undiplomatic or romantic tendencies as might tend to develop enmity among the natives.

Ordinary labor such as carriers, jungle cutters, guides, baroto paddlers, and the like, are available in the countryside. They are a hardy lot, but consideration must be given their mental limitations. A very small number of them speak Visayan to an extent whereunder orders may be communicated. Cebuano-Visayans are available for the more important field labor.

Manchuria Buys German Planes

The Manchuria Air Transport Company has purchased two Heinkel transport planes of the 116 type representing the last word in aircraft engineering. These two planes were flown from Berlin to Tokyo via the southern route by the two Japanese pilots, Messrs. Yoshio Kato and Hachio Yokoyama, who participated in the Libya circuit air race recently, and by two other pilots, Messrs. Shogo Matsui and Sumitoshi Nakao. The mechanics who will accompany them are Messrs. Torao Okamoto and Kingo Ishikawa, and two others. The Heinkel planes left Berlin on April 23, and were scheduled to reach Tokyo on the 29th. They are low-winged monoplanes made entirely of duraluminum and having a seating capacity for seven passengers, and a cruising radius of 4,500 kilometers.

Rewa River Bridge, Fiji

(*From "The Engineer"*)

The construction of a main circular trunk road round Viti Levu, one of the Fiji Islands, involved the crossing of the Rewa River, in order to carry the road to the north and west of the island. Prior to the construction of the bridge described in this article—which was completed in May, 1937, and opened the following month—the crossing was effected by means of a cable-driven steam ferry. The road traffic was heavy, and on special occasions the ferry was called upon to transport as many as ninety cars per hour continuously for eight to ten hours. In order to eliminate this delay and congestion, and in order to provide for the future requirements of the vehicular traffic, a scheme was prepared for a road bridge crossing the Rewa River and connecting Nausori, on the east of the river, with the new road. This road is now under construction, and eventually will be a circular road around Viti Levu, as mentioned above. The accompanying sketch map, reproduced in Fig. 1, shows the position of the site of the bridge relative to the town and harbor of Suva, and also shows the roads existing prior to the construction of the bridge.

The main consideration which governed the choice of the site of the bridge was the desirability of providing a direct crossing to Nausori. On the western bank of the river there is a promontory at Davuilevu. This promontory is the only high ground on this bank of the river between Davuilevu and the coast, and from it there juts out into the river for a distance of about 300-ft. a bed of conglomerate, which promised a good foundation for the piers of the bridge. Furthermore, if the line was extended to the opposite bank over this conglomerate, it arrived at a convenient situation for the Nausori side of the bridge. It was therefore decided to build a bridge on this line, subject to the borings giving evidence of satisfactory materials wherein to sink the foundations.

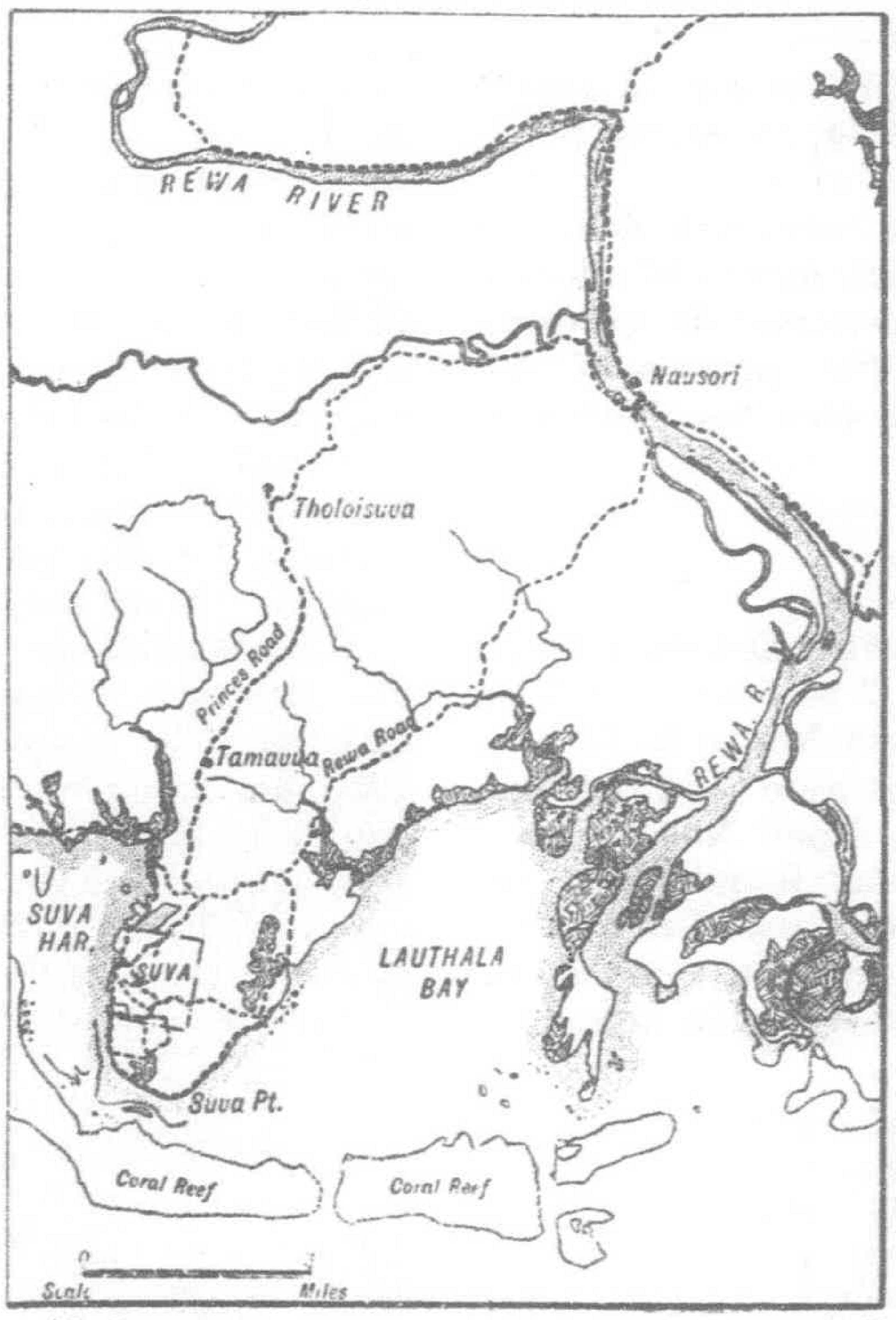


Fig 1.—Sketch Map of Suya and Bridge Site

As a preliminary to preparing the scheme for the bridge, local conditions of rainfall and flooding were ascertained. The river at the bridge-site is tidal, with a rise and fall of 4-ft. The watershed above the bridge has an area of 1,125 square miles of hilly country, which rises to a height of 2,000-ft. about 20 miles upstream from the site of the bridge, and rises at the north end of the watershed to a height of more than 4,000-ft. The soil throughout the area is clayey and the absorption is low. The average yearly rainfall is 118-in., but in 1931 91-in. of rain was said to have fallen in nine days. These conditions are such as to cause necessarily rapidly rising floods and swift currents, and, in fact, freshets causing a rise above high tide level of from 4-ft. to 6-ft., with current velocities up to seven knots, are frequent. A rise of from 15-ft. to 16 ft. would cause an overflow over the banks of the delta, but only a most exceptional flood, such as occurred in 1931—during that year the flood rose 18-ft. 6-in. above ordinary high tide level—would cause such a rise.

Design of Bridge

The bridge was designed by Messrs. Rendel, Palmer & Tritton, and the steelwork was manufactured by the Horsehay Company, Ltd. The whole structure was erected departmentally by Mr. J. H. Williams, M.INST.C.E., at a total cost of £83,000.

The design and character of the foundations were based on the results of borings on the selected bridge line between the bed of conglomerate and the Nausori bank, which indicated that the river bed consisted of sand to a depth of 130-ft. Clearance had to be provided for ordinary river craft at times of high floods, and this limitation proved to be the deciding factor for the height of the piers. The completed design, as shown in the line engraving, Fig. 2, consisted of a bridge with twelve spans, the approach spans being of plate girder construction and the remaining spans of N-girder trusses. On the Davuilevu bank there are two approach spans of 60-ft. each, and on the Nausori bank one approach span of 60-ft., while the remaining spans are of 120-ft. The 60-ft. plate girder approach spans are designed in accordance with the standard design of the Crown Agents, but the 120-ft. spans depart from the standard design, inasmuch as they are modified slightly by stiffening the bottom boom. This modification was adopted so that the span would withstand the compression stresses induced when cantilevering during the course of erection. The completed structure is shown in the view reproduced in Fig. 3.

The steelwork was designed to carry two lines of traffic, each composed of four axle loads of four tons each, and a pedestrian load of 100-lb. per square foot. Consisting of pairs of cylinders set at 21-ft. centres, the pier foundations were 12-ft. in diameter with

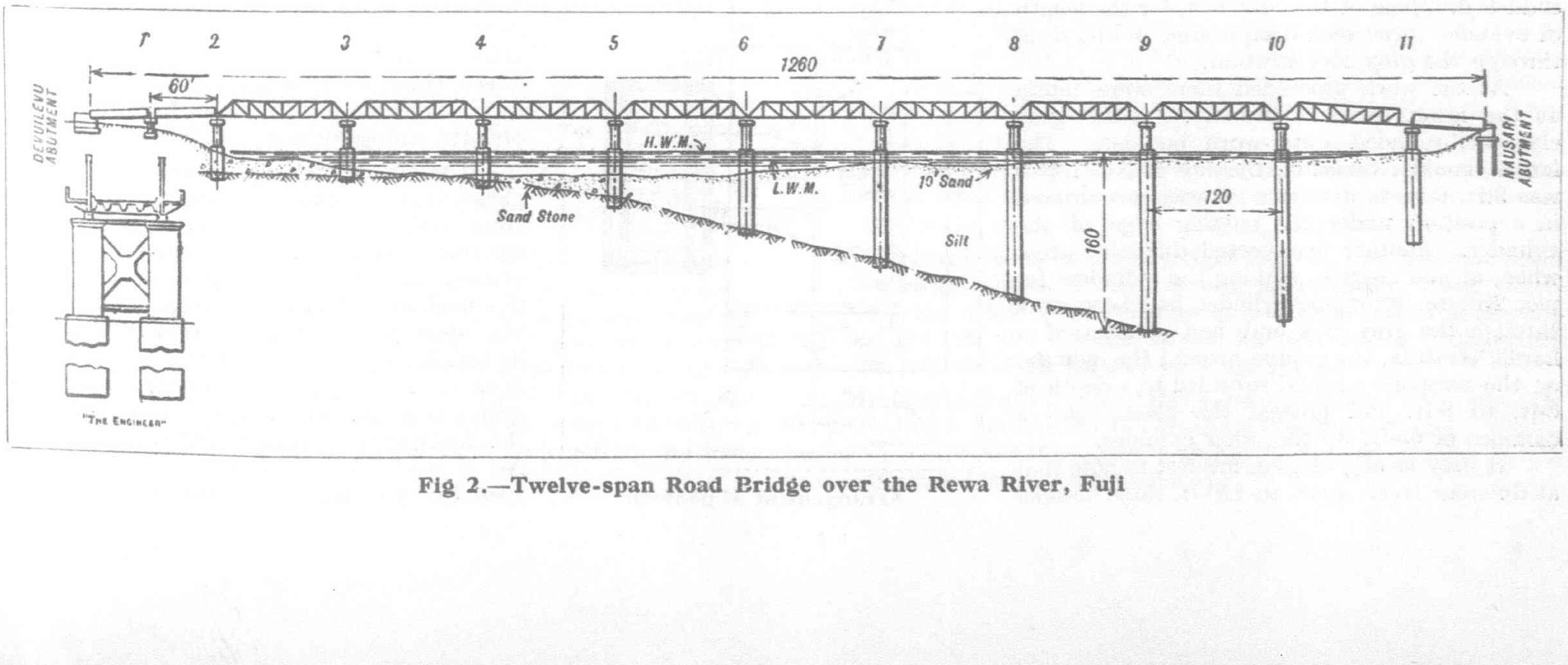


Fig 2.—Twelve-span Road Bridge over the Rewa River, Fuji

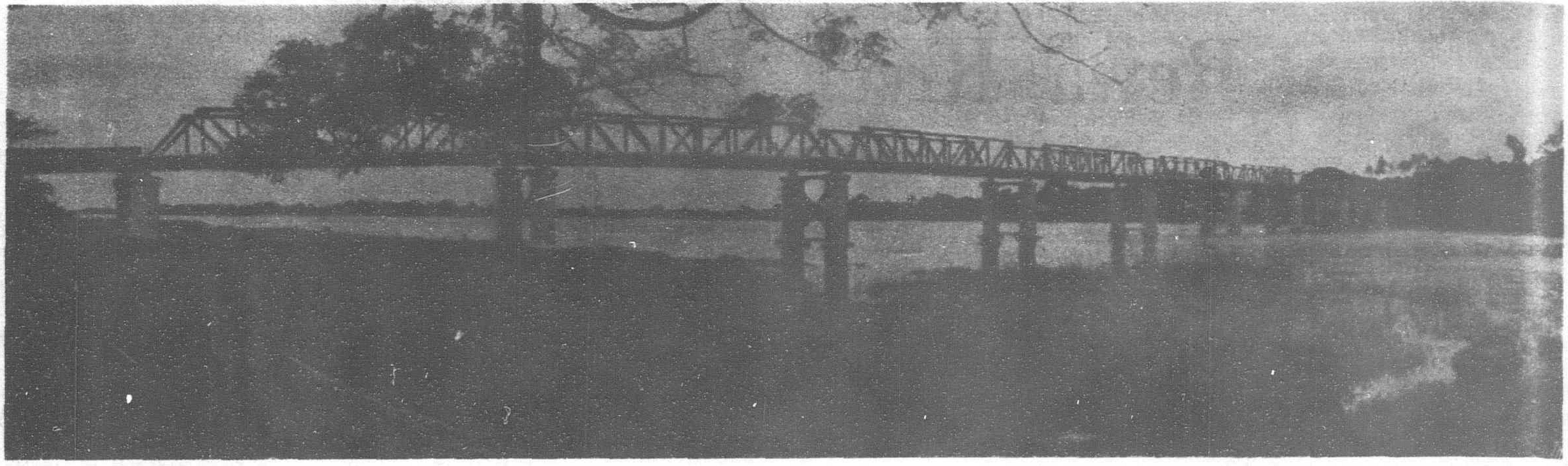


Fig. 3.—The Completed Road Bridge over the Rewa River, Fiji

walls 2-ft. 6-in. thick, while the piers above high water were formed from circular concrete columns, 8-ft. in diameter, connected by reinforced concrete ties and diagonal bracing.

Of a straightforward design, the bridge structure does not possess very great interest. The methods which had to be adopted in sinking the foundations and erecting the superstructure, however, presented several interesting features, and the purpose of this article is mainly to describe these difficulties and the manner in which they were overcome.

Foundations

In consequence of the rocky nature of the river bed the foundations for the concrete cylinders for piers Nos. 2 to 5 were sunk by the compressed air method. Cylinders for piers Nos. 6 to 11 were sunk by open dredging. " Orange peel " grabs were used throughout the dredging operations. All the piers from Nos. 2 to 9 were founded in sandstone ; pier No. 10 was founded in clay merging to shale ; and pier No. 11 in a bed of coarse firm sand.

The geological features revealed in sinking the foundations were unusual. Strata of highly plastic wet clay, of a light grey colour resembling a soft " plasticine," were encountered. The cylinders, on breaking through a stratum overlying this soft grey clay, dropped through as if into a cavity, and only stopped after penetrating a harder substratum to the extent of several feet. In one instance the cylinder dropped through a distance of 18-ft., and stopped with the steining 11-ft. below water-level. In another case the cylinder in a temporary island dropped 15-ft. and stopped with the top of the concrete 8-ft. below water-level, much of the island having been washed into the cylinder.

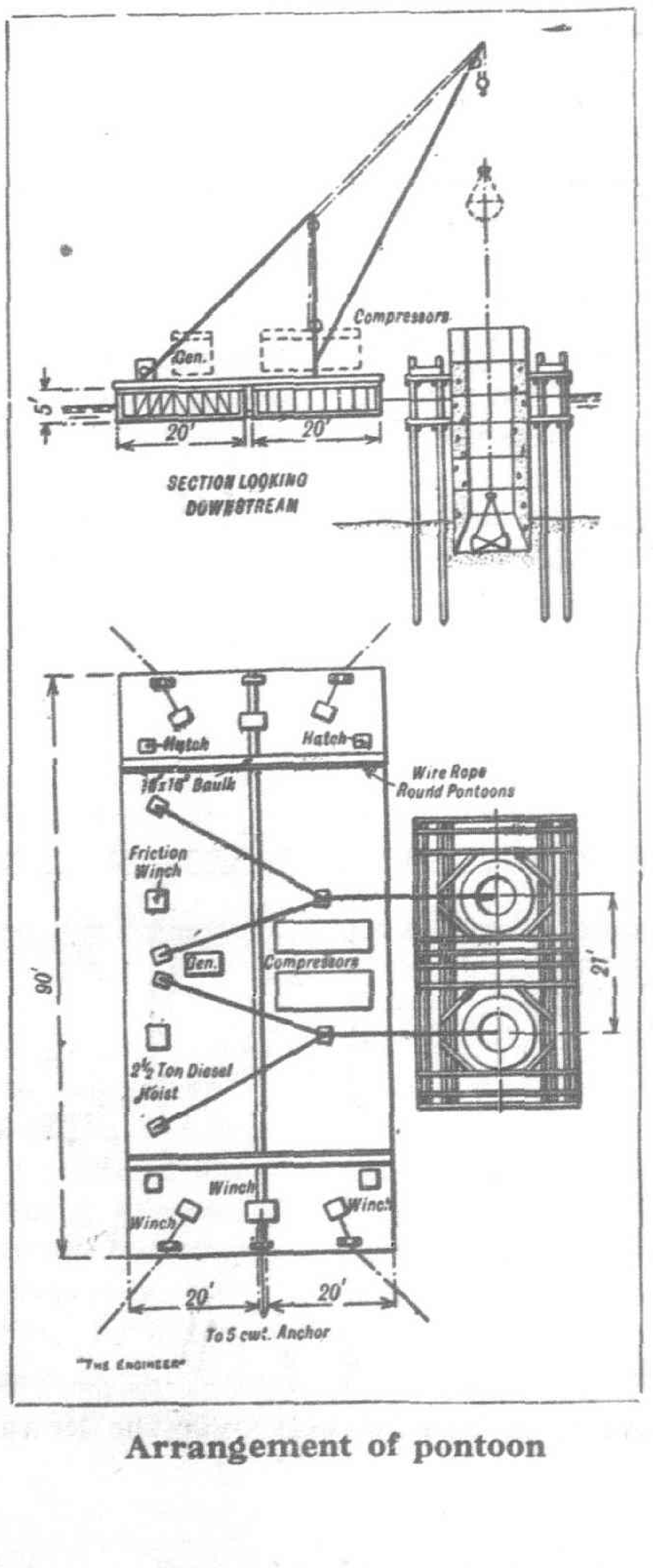
In order to minimize the risk of the cylinder top being submerged under these conditions, the steining was built up to a considerable length—sometimes 20-ft. above water-level. This view also serves to illustrate the magnitude of the sudden dropping of the cylinders, for the length of cylinder to be seen disappeared in one drop through the grey clay stratum.

As the work proceeded there were found at the lower levels of the strata of soft grey clay well-rounded water-worn boulders. The largest boulder found on the site of No. 7 pier was 3-ft. 6-in. in diameter ; it was encountered in a position under the cutting edge of the cylinder. Another unexpected difficulty arose when, at one stage in sinking the cylinders for pier No. 10, after one cylinder had been sunk through the grey clay and had penetrated a harder stratum, the ground around the cylinder on the temporary island subsided to a depth of 6-ft. to 8-ft. and pressed the plastic clay a distance of 65-ft. up the other cylinder.

It may be of geological interest to note that at different levels down to 120-ft. three distinct layers of water-worn, barnacle-covered boulders, sea shells, bits of hard wood and such *débris* as are usually found on a sea beach, were grabbed up. Below 140-ft., however, only fresh-water shells were found. An apparent confirmation is thus obtained of the theory put forward by Darwin that the Fijian archipelago was formed as the result of the subsidence of a continent.

As a result of the unsatisfactory nature of the foundations the piers had to be founded at a greater depth than was anticipated. The total length of a 12-ft. diameter cylinder provided for in the estimate was 1216.5 lineal feet, whereas the total length actually constructed was 1679.5 lineal feet, an increase of 38 per cent in cylinder concrete quantities and sinking.

Necessarily the controlling factor in the time taken in erecting the various portions of the bridge was the progress of the cylinder sinking. The plant pontoon was ready for work on February 22, 1935, and cylinder sinking was commenced on this date and completed by March 22, 1937. The engravings show the arrangement adopted for the open dredging operations with this plant. It consisted of two oil-engined cranes mounted at 21-ft. centres on the pontoon, together with the air compressors and other machinery. In this way the dredging for a pair of cylinders could be proceeded with simultaneously. With an overall length of 90-ft., the pontoon was made up of two sections, each 90-ft. long, 20-ft. wide, and 5-ft. deep, held together with 16-in. by 16-in. timber baulks and wire rope.



Arrangement of pontoon

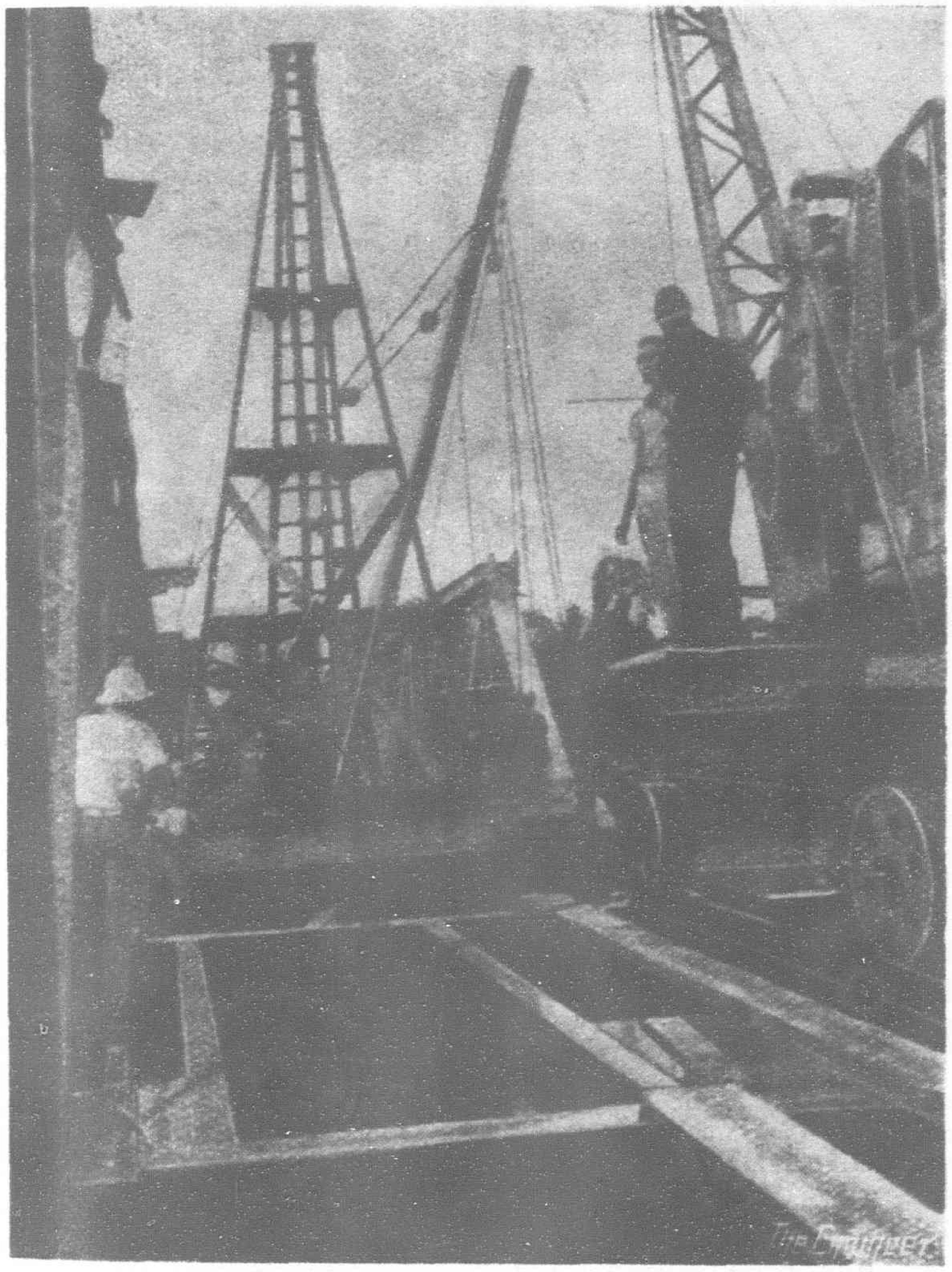
Erection of Superstructure

In order to avoid delays resulting from possible damage by floods to timber staging, the steel trusses in spans Ncs. 4 to 10 were erected by the cantilevering method, an additional reason for this procedure being the high cost of timber. A timber staging was built, however, to support the first truss during erection. The web plates of the top boom were extended as lugs beyond the end posts. These lugs were used to form a pin joint between the temporary tie beams and the adjacent trusses. Castings were attached temporarily to the bottom booms between which a 4-in. diameter pin was placed to form a knuckle joint in order to take the compressive stresses during cantilevering.

The counterweights necessary on the completed span in order to balance the weight of crane and gear on the span under cantilever erection were found in convenient form in the precast concrete slabs for the footpaths. When the steel work had been erected in one span—say, span No. 4—and the truss lowered on to its bedplates, the precast slabs used on span No. 3 as counterweights were brought forward to span No. 4 and placed permanently in place on the footpaths. Then the slabs cast for span No. 5 were placed on the shorewards end of span No. 4 to act as counterweights, in turn to be passed forward to their permanent place. This method of erection proved satisfactory and the cost was low.

Span No. 11 was erected before span No. 10. In consequence of the great depth to which it was necessary to sink the cylinders for the foundations for piers Nos. 9 and 10, and the extra time required therefor, it was not possible to proceed with the erection of the steel work by continuous cantilevering. It was important that the steel erectors who had been trained from the beginning of the work should be retained, and therefore, as there was available a quantity of used timber, it was considered more economical to construct a staging and proceed with the erection of No. 11 span than to wait for continuous cantilevering. Actually thereby a saving of four weeks' time was effected.

In his report on the construction of the bridge the engineer, Mr. J. H. Williams, M.INST.C.E., stated that a "crane" known as the "H.R." (Heath Robinson) was used in erecting span No. 11; this crane is illustrated above. It was made up from a pile-driving frame and a 9-in. by 9-in. pine jib and proved very satisfactory in use for the work for which it was "designed." It was a simple timber or light jib swivelled to a cross bearer beam, which could be clamped in any desired position on the cross girders. The accompanying hand winch could be attached in any convenient place and did not have to be moved with every move of the jib, while the erected parallel top booms, with suitable guys, rendered a mast unnecessary.



Tackle used in erection

Concluding his report, Mr. Williams observes :— "Erecting the steel work has been a source of pleasure on account of its accurate fitting. The fabrication of girders has made enormous strides during the past fifteen years. There was, in all the twelve spans, not a single misfit and not a hole that required reaming in the old sense of forcing the holes to meet. There was one hole not drilled in a pair of gusset plates; this sole exception emphasizes the high quality of present-day shop work, and reflects no little on inspection."

Tokyo Prepares for the XIIth Olympiad

(Continued from page 139)

accessible from Sapporo. All in all, this district has the best qualification as the site for the skii-ing races. The present skii-ing grounds lie in the mountain range which embraces Mts. Teineyama, Sankakuyama, Okurayama, Moiwayama and Maruyama. The Okura Schanze, said to be the best in the Orient, will be used at the time of the Olympics.

Japanese Government Enthusiastic

The Japanese Government is most enthusiastic over the coming 12th Olympic Games. To prepare for the event, various appropriations have been made, including Y.750,000 for 1937, another Y.750,000 for this year, and by 1940 a total sum of Y.2,800,000 is expected to be provided. Tokyo municipality is no less enthusiastic. When Itta Kobashi, former Education Minister, was elected mayor, civic interest waxed still higher, Y.200,000 being appropriated last year just for office expenses. On March 19 this year bills were introduced in the City Assembly for Y.6,000,000 to be used in construction of the stadium and Y.10,000,000 for road improvement. The municipality is also setting aside Y.1,000,000 to defray traveling expenses of athletes from abroad who are coming to the Tokyo Olympiad.

Singapore Dock and Harbor

(Continued from page 140-141)

purpose, and shipped across in train ferries capable of carrying twelve wagons with 100 tons of stone per trip. A total quantity of 1,600,000 tons was taken out of the quarry, out of which 1,250,000 tons were crushed for concrete metal. The crushing and screening plant had an output of 150 tons per hour, and was electrically driven.

The new graving dock and other works are illustrated by an accompanying engraving and four photographs reproduced with this article. Sir Leopold Saville, K.C.B., held the post of Civil Engineer-in-Chief at the Admiralty when the design and contract particulars were prepared for the work included in the contract with Sir John Jackson, Ltd. He was responsible for the wharf walls, graving dock, etc., and their construction was begun under his direction and completed under his successors, Mr. T. B. Hunter, C.B., and Mr. A. L. Anderson, C.B.

Trackless Train in Manchuria

(Continued from page 150)

Judging by the experience received during the trial run it might be said that there is no gradient, sandy roads, difficult curves, or low temperature which cannot be surmounted by the "Romen Reisha," which entirely suits transportation conditions in Manchuria.

The trackless train will be taken up between Anta-Hailun-Paichuan-Koshan and other places, serving as connection lines to the railways.

According to calculations of freight experts, a Manchurian horse vehicle charges about 35 sen per ton, an ordinary truck about 30 sen per ton, while freight charges of the Diesel train will amount to 7 sen per ton, and if trains of still higher carrying capacity are used the cost could be reduced to 3 sen per ton.

The General Directorate of Railways is planning, in co-operation with the Dowa Automobile and Machine Company, to put trackless trains into service before long, making thus a new chapter in the transportation history of Manchoukuo.

Poland's New Train-Blocking System

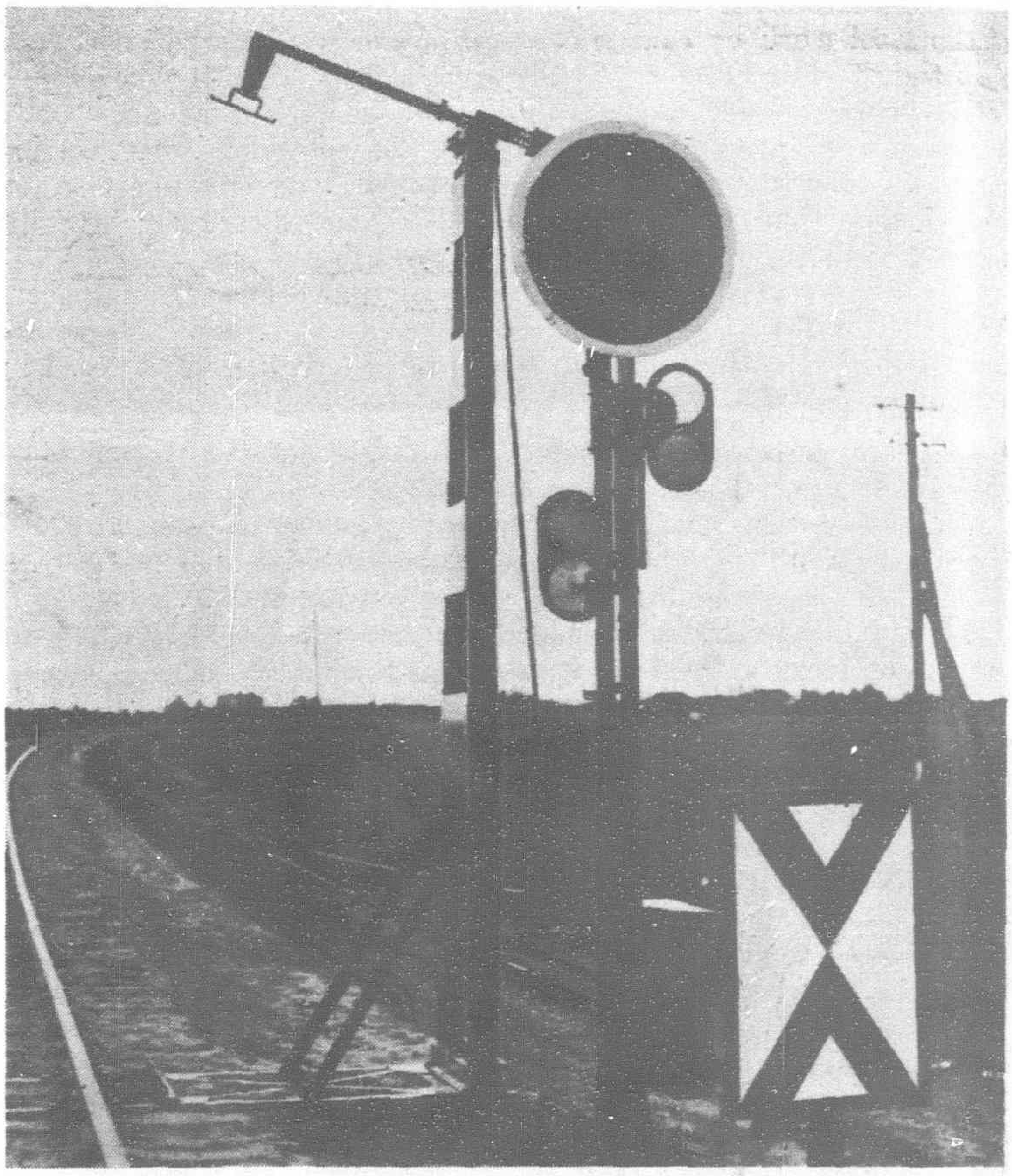
It is announced that work has begun on the installation of the Kofler automatic mechanical train stop apparatus on the Tluscz-Ostrolenka section of the State Railways, as sanctioned by the Ministry of Transport in June last. The section is 74 km. (46 miles) long, and all steam locomotives running on it will be equipped. This apparatus is the invention of an Austrian engineer, Herr George Kofler, and is of extremely simple construction. Trials with it have already been made on the Isar Valley and Cologne-Bonn electric lines in Germany and the electrified North Milan Railway in Italy, but the present installation is much the longest so far put down. Descriptions of the working appeared in *The Railway Gazette* for August 26, 1932, and *The Railway Engineer* for November, 1932, and September, 1933.

The Mechanism Described

The trip-arm mechanism actuated by the signal beside the line comes in contact with an operating element, of special shape and construction, on the train, designed to work with the minimum of shock, and actuating the brake-setting or warning apparatus as the case may be. The trip arm itself, mounted above the loading gauge, is of novel design and includes an automatic unlocking mechanism which causes it to move entirely clear of the path of the train apparatus as soon as the latter has been acted on, thus eliminating risk of damage from any obstruction, such as out of gauge load. The trip arm is restored to its correct position on the next operation of the signal to "danger."

Electric Cab Control

The inventor has added to his original all-mechanical device an electric cab control working in conjunction with the warning hooter, the brake-setting valve, and a vigilance resetting button. Lamp signals showing the normal and operated condition of the mechanism are used, and also a slow-acting relay controlling the brake action and giving time for a driver to actuate the vigilance button when an adverse signal is encountered. Trials over such a long section should prove very useful in establishing the suitability of mechanical trip mechanisms for general service.



The Kofler Automatic Mechanical Train Stop Apparatus, installed on the Tluscz-Ostrolenka section of the State Railways in Poland

The Apparatus in Jugoslavia

It may be noted that the State Railways of Jugoslavia also are to make a trial of the Kofler apparatus between Resnik and Rypnia, on the Belgrade-Nisch line.

New Soviet Airplanes

Information of special interest about new Russian airplanes, including a monstrous tail-less bomber, appears in a recent issue of *Les Ailes* (Paris), which seems to have been represented at the annual Bolshevik Air Fete in Moscow on August 18. The display was given at the Touchino aerodrome about four miles out of the city.

The various items included a formation of 100 training machines flown by pupils; a display by instructors; aerobatics by a prototype twin-motor bomber, the Tsekabe-26; a set piece; smoke-writing; aerobatics by L-15 single-seat fighters of extraordinary manœuvrability; and finally a fly-past of new types.

The writer in *Les Ailes* says that it was the most interesting of the five Soviet air days. He said that the formation flying of the Military Academy pilots in I-15 and I-16 airplanes could not have been bettered, but that the aerobatics display did not come up to the French standard. But he added that Soviet equipment is more up to date than French. Though the I-16 single-sea fighter, which appeared in the set piece, is probably slightly slower than the Moraine-405, it is almost certainly more manœuvrable. And there are far more of them. The Russians say that they have already more than a thousand in service.

Les Ailes goes on to say that although everyone knows that the Russians have been studying the tail-less airplane for some time, the appearance of the twin-motor Kalinin tail-less bomber on the scene was an absolute revelation. The machine seems to be slow and not very manœuvrable, but it appeared very stable and with excellent visibility and defensive powers in every direction.

The TB-6 four-motor bombers flew past too low for anyone to judge their high-speed qualities higher up. But they did show their excellent armament and good flying qualities. They have four M.34 motors in the wings and a Hispano-Suiza 12Y motor in the fuselage to provide two-stage supercharging for them,—imagine the plumbing.

The big flying-boat which accompanied them seemed to be very manœuvrable for a machine of this size. It has a wing span of 40 m. (131-ft.), a high-aspect ratio, gull-form wings, and an all-up weight of 25 tons.

Les Ailes remarked that the organization was excellent. Allowing for Gallic fervor, the report of the Soviet Air Day does show that the Bolshevists are at any rate well advanced in aeronautics and that we must not make the mistake of under-rating their powers as a fighting force.

Amsterdam to Batavia—A Record of the K.L.M. Air Service to the East

(British Malaya)

The Fokker Douglas D.C. 3 Plane. These Machines are used for the K.L.M. Royal Dutch Air Lines Service to the East

The 500th return flight of K.L.M. Royal Dutch Air Lines from Amsterdam to Batavia commenced on November 30th last. At the end of the flight the K.L.M. had covered this distance of nine thousand miles a thousand times—an equivalent of 360 flights round the equator !

The idea of bringing Holland and the Netherlands Indies closer together by means of an express connection by aeroplane dates from the earliest days of the K.L.M. In October, 1919, the Government of the Netherlands Indies offered a prize of D.Fl. 10,000 to anyone who, before September 1st, 1920, should fly to the Indies within a fortnight. However, the time proved to be too short and the reward too small. Later, it is true, the Government and private enterprise combined raised the prize to D.Fl. 228,000 ; the time limit was lengthened to a month, and September, 1921, was fixed as the latest date of departure, but the preparations for a flight were hindered three times owing to the objections raised by Great Britain to flying over the mandated territory of Iraq. The Netherlands Indies Government abandoned the plan, but in the Netherlands it was taken up again by the "Comite Vliegtocht Nederland-Indie" under the presidency of General Snijders.

The first flight from Amsterdam to Batavia was that of Capt. Van der Hoop, Capt. Van Weerden Poelman and Mechanic Van den Broeke in the one-engined Fokker F VII, with a cruising speed of 70 miles per hour, starting on October 1st, 1920. Nowadays K.L.M. planes fly every other day along the Amsterdam-Batavia route, cruising at 180, covering the distance in five and a half days.

Between the first and the second flight to India there elapsed more than two and a half years. On June 15th, 1927, the air-minded Dutch crowded to Schiphol Airport to cheer Captain Geysendorffer, who was about to make two historical flights with the American millionaire, Mr. Van Lear Black. Mr. Van Lear Black had already covered, in 1927, 70,400 kilometres with chartered K.L.M. planes before his return flight from Holland to Java.

On October 1st, 1927, Pilot Frijns flew from Amsterdam to Batavia in nine days in the three-engined Fokker "Postman Pigeon," carrying an important quantity of air-mail for the first time.

In October, 1928, he was back again in Amsterdam. This trip showed the general public what could be expected from a regular Amsterdam to Batavia service. The result was that the K.L.M. made arrangements with the postal administration for a number of experimental flights which took place in 1928, followed by eight return flights in 1929. The mail carried varied from 131 to 406 kgs.

On September 25th, 1930, the regular fortnightly Amsterdam-Batavia service was inaugurated. In October the following year there was a weekly service ; in June, 1935, the twice weekly service was opened ; and on October 2nd last year the K.L.M. started its three times a week service.

Meanwhile, the K.L.M. had effected two brilliant flights ; the first in 1934, when the Douglas D.C.2 "Uiver" competed in the MacRobertson air race. The crew consisted of Mr. Parmentier, Commander ; Mr. Moll, First Officer ; Mr. Van Brugge, Wireless Operator ; and Mr. Prins, Engineer. The plane flew from Mildenhall to Melbourne in three days and eighteen hours, arriving second, having carried three passengers and 191 kilogrammes of mail, winning the first prize in the handicap race. After this success the K.L.M. ordered twenty Douglas air-liners.

The other record flight was carried out when the "Snipe," one of the K.L.M. Fokker F-XVIII's, started from Amsterdam airport for South America and the Netherlands West Indies. Captain Hondong landed the "Snipe" five days later in Paramaribo (Netherlands Guinea), the actual crossing of the Atlantic having been effected in less than seventeen hours : over 25,000 Christmas letters from Holland were delivered the same day.

From October of last year there have been three services a week between Amsterdam and Batavia. With this regular connection the bond between Holland and the Dutch Indies has been consolidated.

During the first half of 1935 Fokker planes were still in use. The second half of 1935 shows the result of the twice weekly service, operated with Douglas planes of the D.C.2 type.

The transport of freight could only be increased slowly, as the loading capacity of the planes was almost entirely taken up by the passengers and mail.

Owing to the mail traffic to and from intermediate stations, the Amsterdam to Batavia line is not only national in character, but is also of great international value. It has, in fact, become one of the most important—and at the present time the fastest—express connections between Europe and the Far East. The fact that it connects up with the other air lines, such as the Cairo to Cape Town service and the Penang to Hongkong service of Imperial Airways, and the Bangkok to Saigon service of Air France, further enhances its value, since in this way more remote territories are brought within the reach of an express service. Not only the countries of Western Europe, but also the United States, have begun to send increasing quantities of mail to the Far East *via* the K.L.M. from Amsterdam.

The company have always endeavoured to shorten the journey from Amsterdam to Batavia by using faster machines. The three-engined Fokkers of the F.7.B. type, with a cruising speed of 105 m.p.h., originally used on the line required a flying time of about 85 hours, which meant a 12-day journey. Later the Fokker F. XII appeared on the line with a speed of 115 m.p.h., completing the journey in 75 flying hours (10 days). Thereafter the journey has been reduced to 5½ days by Douglas planes of the D.C.2 type. From June 5th last the K.L.M. has operated the Amsterdam-Batavia service with Douglas planes of the D.C.3 type.

Manchuria Steel Demand High

The demand for steel materials in Manchoukuo this year was estimated at 920,000 tons by the Japan-Manchoukuo Trading Company, this being some 400,000 tons in excess of last year. However, the estimated demand is about 300,000 tons less than actual requirements for the year, amounting to 1,200,000 tons, and all demands not of urgent necessity were curtailed. To meet the urgent demand for steel materials in this country, in which industrial development is making rapid progress, 320,000 or 330,000 tons will be supplied by the Showa Steel Works, the Sumitomo Steel Pipe Manufacturing Co., the Anshan Steel Material Co., and the Nakayama Steel Pipe Co., all in Manchoukuo, while the remainder will be supplied from Japan, ranging from 250,000 tons to 350,000 tons as a minimum, and from Germany and the United States to the amount of some 300,000 tons. Negotiations on foreign imports are under way by the Japan-Manchoukuo Trading Company with the concerns interested in the two countries.

Engineering Notes

INDUSTRIAL

THE USAMI TUNNEL.—The boring through of the Usami tunnel, Izu Peninsula, has been effected. The 2,920-meter tunnel was started in January, 1933. Work was scheduled to be completed in September of last year, at a cost of Y.1,380,000, but difficulties encountered resulted in the delay, with expenses up to Y.2,200,000.

MANCHOUKUO'S LARGE DAM.—The Manchoukuo Government is building the Orient's largest dam on the Sungari river. Impounded water will be used by a large electric power plant. The project is to be completed in four years, at a cost of Y.60,000,000, says the *Nikkan Kogyo*. The new dam will be larger than the Komaki dam of the Shogawa Electric Power Company.

TOKYO'S HUGE DAM.—Satisfactory progress is reported by the engineers of the Tokyo Municipality in the construction of the huge dam, which is to save the capital from its annual water shortage. The dam, begun in 1936, will be completed in 1941 at the estimated cost of Y.39,500,000. The new reservoir will have an area of 4,300 sq. kilometers. The 320-meter dam will stand at Lake Yamanaka, at the base of Mt. Fuji. The scheme will absorb three villages with 800 houses, which will be submerged.

MANCHOUKUO PROJECT.—The Hidachi Seisakusho Company, a big Japanese machine manufacturing company, has decided to start on the construction of a big works at Mukden costing Y.5,000,000 and covering an area of 181,500 square meters. The works will be able to produce 2,500 tons of pig-iron and 1,000 tons of steel a year with a respective value of 1,750,000 and Y.700,000. Since the yearly Manchoukuo consumption of pig-iron and steel amounts to only about 4,000 tons, the new works will be able to supply nearly all the home requirements. Later on the works will also produce machinery.

SHANGHAI FLOOD PREVENTION.—The Public Works Department of Shanghai International Settlement has started preliminary work on a project combining a higher bunding with a pump system, which will endeavor to keep the drains from being flooded by returning the water to the Whangpoo River. The outer edge of the Bund is to be raised about three feet. The project, it is estimated, will offer an efficient safeguard against flooding, such as Shanghai has experienced in former years. The project, which will be finished before the start of the typhoon season, will extend along the Bund from Soochow Creek to the border of the French Concession.

JOHORE GOVERNMENT OFFICES.—Johore is to build the finest Government Offices in Malaya, at a cost of about $1,750,000. Situated on the site of the old fort, Johore Bahru, on the edge of the Strait, the new building has been designed in the classic style with a majestic facade of Ionic columns, surmounted by a central tower and dome rising to a height of 270-ft. above sea-level. The building will take the shape of a rectangle, measuring 340-ft. by 295-ft., with an internal courtyard (195-ft. by 135-ft.), and a ground floor and three main storeys.

It will incorporate nearly all the Johore Government departments, the State Dewan, and a spacious reception hall. The imposing exterior, set high above Johore Bahru, will provide a landmark visible for miles around.

RAILWAYS

CANTON-KOWLOON ROAD.—A contract for a £3,000,000 five per cent loan for the construction of a railway from Shektan, on the Canton-Kowloon railway, to Meihsien, in Kwantung, has been concluded between the British Chinese Corporation and Mr. H. H. Kung, the Chinese Finance Minister, on behalf of the Chinese Government.

THE KIANGSI RAILWAY.—The Anhwei railway, which was originally to go through to Yushan, is going via Lohping and Kueichi, being joined up in the latter place by the Fukien line. Kueichi, which used to be a quiet place, will thus become the hub of northeastern Kiangsi. The light rails on the Hangchow-Yushan Railway are to be exchanged for heavier ones against the time when the Chientang River bridge will be finished. Then there will be a through service from Nanchang to Shanghai.

AVIATION

ORIENT FLYING SERVICE.—Large crowds at Singapore recently watched the arrival of the Imperial Airways "Cordelia," the first flying-boat of the new Empire type to proceed as far east as Singapore.

The "Cordelia" has been making a survey flight along the new marine route east of Karachi, detailed tests being carried out with various aspects of ground organization and equipment. This survey flight, and other preparations in hand, form a preliminary to regular flying-boat services through to the East.

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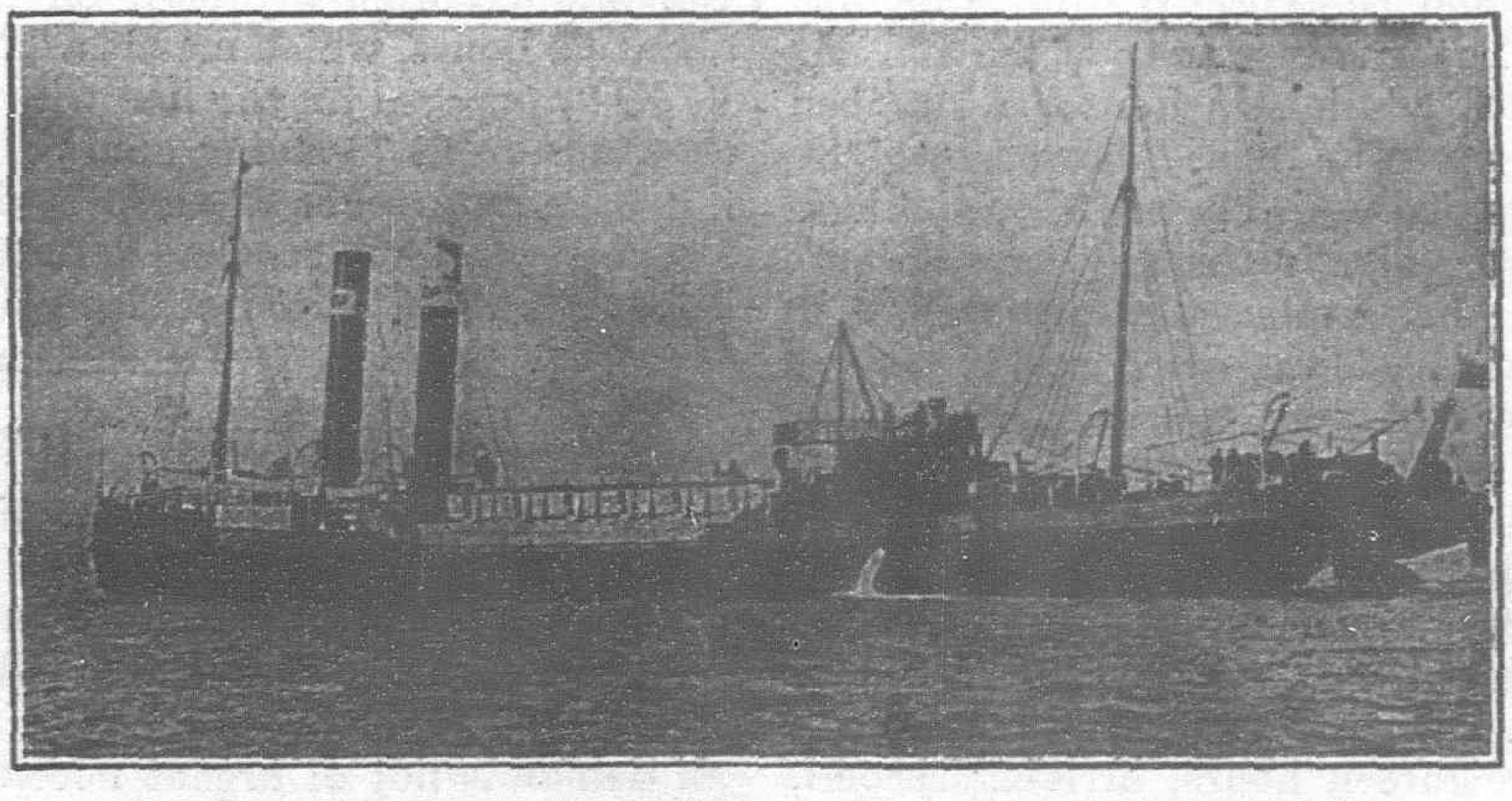

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